A NON-ARISTOTELIAN
STUDY OF PHILOSOPHY

by

ANTONY M. ECONOMIDES

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(A project submitted in partial fulfillment of the requirements for the degree of Bachelor of Arts, The Faculty of Arts and Sciences, The American University at Cairo, Egypt; March, 1945.)

FOREWORD

by M. Kendig, Educational Director and Editor

A happy turn of circumstances brings together in our publication of this first NON-ARISTOTELIAN STUDY OF PHILOSOPHY the author, Antony Economides, and the teacher who introduced him to Korzybski's work. The Institute and the editor are indebted to Guthrie E. Janssen for his informative introduction about the author and the socio-cultural background of the study and for the painstaking work he has done in producing this publication.

Cables from Cairo ordering some dozens of copies of SCIENCE AND SANITY in 1943-44 originally put us in touch with Mr. Janssen, who was then teaching at the American University. He is, we believe, the first person to introduce non-aristotelian training in Egypt. The lively — and eventually world-spanning — correspondence set in motion by these orders finally brought Mr. Janssen back to the U.S.A. in 1946 for study with Korzybski.

Guthrie Janssen was born in Illinois, where his grandfather settled when he came from Denmark in the 1880's. He attended Illinois College and the University of Illinois. Immediately after graduation from the University, he went to Egypt, where he spent the next six years teaching English in Assiut College and later in the American University at Cairo and traveling in Europe and the Middle East.

When he joined the National Broadcasting Company in the autumn of 1944, he was linguistically and semantically well prepared for his post as correspondent and broadcaster in the Middle East by his knowledge of Arabic and long experience in dealing with university students representing the diverse and tangled cultural backgrounds of the area. In 1945 he represented NBC on the round-the-world flight arranged by the Air Forces, was with the first Americans to enter Hiroshima after August 7, reported on the Russian evacuation of Mukden, and spent the next months broadcasting from the Philippines, China, Korea, and Japan. In the summer of 1946 he resigned his post and flew in from Tokyo to attend our annual Seminar-Workshop. Later, Mr. Janssen was awarded the Straus Fellowship for a year's training at the Institute and began work January, 1947. One of his first duties has been preparing this publication, for which we have been holding orders since it was first announced for early 1946. We regret this delay due to a series of unfortunate circumstances, but chiefly the disruption of our entire program when sale of the building the Institute had long occupied in Chicago forced us to move out on short notice and wait many months before our new headquarters in Lakeville were established and settled.

In the autumn of 1945, Mr. Economides wrote a letter of appreciation to Korzybski and enclosed a copy of his thesis. We found it amazingly mature, scholarly and complete beyond expectation in an undergraduate study, and were charmed by the author's use of English. Almost immediately we decided to add A NON-ARISTOTELIAN STUDY OF PHILOSOPHY to our publishing schedule.

Mr. Economides supplies what many students of Korzybski's non-aristotelian system and General Semantics show the lack of and need for — a short systematic relating of Korzybski's physico-mathematical and engineering approach to the stream of Western philosophy. He supplies a wealth of documentation, and we believe his study will be particularly welcome as supplementary reading by teachers for beginning classes, and by study-groups and individuals. This study serves as an antidote for the twin errors, one or the other of which most commonly distort the evaluations and verbalizations of many students when they encounter Korzybski's work. Those whose 'knowledge' is over-balanced on the side of literature, philosophy, and history fall into the 'its all been said before' error. They see only 'similarities'. Those whose historical perspectives are so limited they ignore the implications of time-binding see only the 'differences'. They commit the 'it's all entirely new' error and leave themselves wide open to ridicule by the 'similarity-ists'. Mr. Economides gives a beautifully balanced demonstration of proper evaluation by 'similarities and differences', that fundamental characteristic of extensional method. In other words he makes the only profitable approach to historical understanding and practical use of Korzybski's systematization and instrumentation of the historic weltschmerz of creative workers – now so acutely accelerated, so much more acutely felt if not recognized, in our times.

The Economides thesis appears here as he wrote it except for some minor changes in punctuation to bring it in line with Institute styling. It is unusual in our experience to find a student using the terminology of General Semantics with such fine sensitivity for the implications of linguistic structures. It is easy enough to learn the terminology as a new set of words. Using them appropriately in varying contexts to convey one's own formulations is not a skill but an acid test of a mastery of the discipline that is deeper than 'intellectual' understanding.

— M. KENDIG

Institute of General Semantics
Lakeville, Connecticut
30 April 1947

INTRODUCTION

by Guthrie E. Janssen

In the autum of 1943 I introduced a course in General Semantics as part of the third year English curriculum in the American University at Cairo, Egypt. At that time there were new tensions in the Middle East. Postwar struggles for power were beginning to bud, leading to the anti-monarchist mutiny of most of the Greek Army and Navy in the spring of 1944, the later anti-British riots in Egypt, the crisis with the Soviet Union over Azerbaijan, and the new terrorism in Palestine.

In this atmosphere my students were five Egyptians, five Greeks, four Jews, one Britisher, one Palestinian Arab, and two of mixed background; nine men and nine women who carried the religious labels of Greek Orthodox, Coptic, Hebrew, Moslem, and Protestant. Most of them spoke three languages fluently, some four or five. All knew English well. All faced a problem that American students face only in diluted form — how to plan for a job and have a life of relative sanity and security in an environment where strong economic, social, and religious pressures would buffet them around; where every day they would be confronted with extreme dogmatisms and prejudices, and see frequent violence. Without training they would sink into the racial or religious bigotry of one of the many groups which orient themselves by centuries-old verbalisms (i.e. by intension). With some training in being extensional (orientation by 'facts') they could swim along on the surface of the chaos and preserve a broader, more mature outlook. In the past they had got this training ineffectively, and the hard way, by trial and error or piecemeal learning. Consequently, when General Semantics offered a definite, precise METHODOLOGY FOR EXTENSIONALIZATION, my students seized on it as the most promising 'subject' they had yet been taught.

One of my students was Antony M. Economides. He was born of Greek parents in Minia, in Upper Egypt. He attended the Greek Community Primary School and then came to Lincoln School, the secondary section of the American University at Cairo. In both his high school and university work he maintained exceptionally high marks and showed a lively interest in philosophy. At first he found General Semantics difficult, more difficult than for the more 'extrovert' types for whom it was 'simple' and 'natural'. Then shortly he began to get the 'feel' of General Semantics and soon he surpassed his fellow students in applying it. For a Greek, with a solid aristotelian background, he was surprisingly eager to learn a non-aristotelian methodology. He read SCIENCE AND SANITY with a persistence that few of his classmates were willing to match. At the end of the year he told me that for his senior thesis he wanted to evaluate the whole field of philosophy using Korzybski's methodology. I tried to discourage him and told him it was too heavy and too complex a job. Moreover, he would be on his own since I was leaving Cairo to take up work as war correspondent and broadcaster for the National Broadcasting Company. But he went ahead anyway. That summer he read practically everything in print on General Semantics, and the following winter he wrote this 'Non-aristotelian Study of Philosophy'. It seems to me a remarkably mature and balanced paper for an undergraduate only nineteen years old. Mr. Economides went beyond the demands of the American University's high standards and did a surprising amount of reading. Moreover, it took some pluck to produce this evidence against 'philosophy' in a school where the traditional 'philosophy' is emphasized. This may partly explain his heavy reliance on authority and the plethora of footnotes.

To fully appreciate the revolutionary implications of a non-aristotelian revision in the milieu from which Mr. Economides comes, one has to live in the Middle East for a while, and in Greece. Like the Bilharzia fluke, an intestinal parasite that infects close to seventy-five per cent of the people of Egypt and saps their energy, aristotelian formulations have stultified the neuro-semantic reactions and held back cultural development. Probably nowhere else in the world can one find more intense dogmatisms, a greater predilection for intension, or a greater lack of 'consciousness of abstracting'. Communication in the broadest sense is at a minimum. Consequently scientific and technological development has been blocked. Another result is that political and economic progress has not come through peaceful evolution but through violent upheavals or foreign impositions.

In this tense and chaotic atmosphere American colleges in the Middle East have introduced some islands of neutrality where students can afford to be extensional without being quite so open

to the charge of betraying their country or their religion. The fact that the mixed nationalities in the American University at Cairo not only get along well together but probably have a better esprit de corps than most students in the U.S. is a tribute to the University's ability to extensionalize somewhat the individual prejudices. The fact that I was given an entirely free hand in teaching a year's course in General Semantics is an indication of the University's willingness to try any program that looks promising. But in general the programs of American colleges in the Middle East have not been as successful as they might have been, because they have not used a CONSCIOUSLY FORMULATED METHODOLOGY FOR EXTENSIONALIZATION. Too often they have merely tried to persuade students to trade one old dogma for another antiquated one. This has been especially true of the missionary schools. In almost one hundred years, for example, a very large corps of American missionaries has succeeded in converting a total of less than 200 Moslems — most of whom reverted to Mohammedanism within a year. In these circumstances, Korzybski's theory apparently provides a badly needed and wanted formulation, and my students seized onto it. A year later when I returned to Cairo some of my students told me they thought it was the 'most valuable course' they had ever taken. And when I tried to buy back some copies of SCIENCE AND SANITY not one of my students would sell — some said it was the most precious book they owned.

A heavy responsibility rests on these students of American colleges in the Middle East. Their task is to help their fellow-countrymen bridge a cultural gap of something like 2000 years. This requires not just 'more learning' but a consciously applied GENERAL METHODOLOGY for quickly bringing orientations up to date. One often hears the remark, 'Look at the great cultures produced by the Ancient Egyptians, the Ancient Greeks, etc.; then they lost it all'. People seem to feel that something was 'lost' which has to be 'regained'. An extensional examination of what happened would indicate that nothing was 'lost' and consequently there is nothing to 'regain'. Apparently what happened was that the peoples of Western Europe who inherited the Eastern Mediterranean cultures USED THEIR TIME-BINDING CAPACITIES to build the newer and more flexible neuro-linguistic patterns which have produced our Western science. Meanwhile, the Eastern peoples simply kept repeating their old neuro-linguistic and neuro-semantic patterns which were not adequate to handle the new situations. The attempt to apply the old patterns in today's situations has resulted in the present chaos. Today the whole world faces similar alternatives — whether to make new formulations to handle the implications of the liberation of nuclear energy, or to go on living by the old ones and end up in disaster.

Today the prevailing formulations in the Middle East and in Greece, like the primitive plow and water wheel of the Egyptian FELLAH, are practically the same as around 500 A.D. Small wonder then that importations of culture and money from the West are required just to maintain the present conditions of life. Apparently, however, it is not generally realized that our inpouring of money is simply sand down a rat hole unless it is accompanied by some general re-education in the non-aristotelian direction. American schools are doing something, but they cannot be very effective until they formulate consciously and precisely just what they are trying to do — namely, extensionalize the old orientations and build up-to-date appropriate neuro-semantic reactions.

Considered from this point of view, Mr. Economides' paper, since it deliberately introduces the non-aristotelian outlook, represents more than just another B.A. thesis; it represents a bold step in a new direction. — G.E.J.

PREFACE

While looking for some system that would show me the means to answer my questions — the usual questions of a young man about the universe and man — and that at the same time would give me an adequate tool with which to attempt some constructive work, I was introduced to the study of General Semantics during the fall of 1943.

I was at once struck by the theory itself, its systematic presentation, its comprehensiveness, the apparently satisfactory manner in which it treated many of my own problems and fields of interest, as well as by the possibilities it offered for application and contribution to civilization. The last-named quality seemed to me to be confirmed by numerous experiments already carried out in different fields.

My initial enthusiasm soon turned into a sober attitude. I decided to attempt to offer some contribution to general knowledge and general social reconstruction by way of research using General Semantics as a basis and a tool. Before attempting any study of specific social fields, however, I considered it necessary and profitable to attempt a study of the vast field of philosophy as some 'philosophy' appears to have existed at the basis of all our institutions, our language included.

General Semantics is intended to be the MODUS OPERANDI in the building of a new civilization — the non-aristotelian civilization — a civilization that will rise from 'the ruins of a dying epoch'. Now epochs always seem to be dying and new ones rising. The importance of the specific crisis of our own day must be left for the historian of the future to determine.

Yet our 'quest for certainty' continues; and we must never for a moment hesitate to reform our institutions and adjust them to the new conditions created by that quest. A new movement for adjustment will, by implication, differ from a previous one; yet it is nothing but a product of the past. And its adequacy to meet new conditions will be poor indeed if it fails to recognize its debt to the past. The position of an epoch and the individuals included in it has been determined by the preceding epochs in order to determine the future ones. To forget this would be to lack a sense of proportion. Therefore, before we destroy we must learn why we destroy; before we build we must know on what we build.

In this paper I have attempted to examine on the basis of General Semantics a few of the fundamental notions and problems treated by the men who have engaged themselves throughout history in the 'quest for certainty'.

In Part One we will present an introductory chapter on philosophy, as well as a brief outline of non-aristotelian systems and General Semantics. This we will use in Part Two to study a few elements inherent in the aristotelian system, with specific examples of our criticisms on a few philosophical themes, reaching the 'climax' of the tale in a discussion on the problem of science and philosophy. The 'anticlimax' occurs in Part Three where we will outline briefly the 'constructive' elements in General Semantics, and give a few concluding remarks of a general nature. Throughout the short (and perhaps inadequate) presentation of General Semantics the reader is constantly referred to the MAGNUM OPUS on the subject: Alfred Korzybski's SCIENCE AND SANITY. Many of the other sources cited throughout the paper are intended to show that various writers have arrived at conclusions similar to those formulated in General Semantics. The use of their material, however, does not necessarily imply that we endorse all their opinions. If any originality is to be claimed in the present paper, it lies in the outline and presentation of the argument.

The defects of the paper are evident. In the first place, time and space were insufficient for the undertaking of such a vast work; as a result, the paper appears more like a condensed outline of the subject than an adequate treatment of it. Moreover, the attempt itself was too bold for the abilities of the present writer.

Yet no other task has been a greater source of pleasure for me than the present attempt, imperfect as it is; moreover, it has proved extremely encouraging to me for the undertaking of further research in the future. Finally, I hope that I have succeeded in expressing the importance of the subject I am treating that others too may be stimulated by the issues raised by Korzybski.

— Antony M. Economides

ACKNOWLEDGMENTS

My indebtedness to Alfred Korzybski is evident; the whole paper is, in a sense, a tribute to to his work. Moreover, I wish to express my gratitude to Mr. Guthrie E. Janssen, my former Instructor of English, for having first introduced me to the study of General Semantics during the academic year 1943-1944. I have also profited from the instruction of Dr. Amir Boktor, Dr. John G. Peristiany, and Dr. Alfred Magar, to all three of whom I owe my acknowledgments. My thanks also go to Professors Marcel P. Kiven, Herbert W. Vandersall, and John R. Shuman for valuable remarks. My deepest gratitude, however, is reserved for Dr. Harold B. Smith, Head of the Philosophy Department, whose teaching in ethics, religion, and philosophy since 1939 has, I believed, influenced me more than the teaching of any other single person. If it is possible to thank one's Alma Mater, I would say that the writing of this paper has been possible only after eight years of work and 'character-development' at Lincoln School and the American University at Cairo, among my instructors and my classmates. And lastly, I cannot but express my gratitude to my parents and to the rest of my family who have made my education possible.

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— ANTONY M. ECONOMIDES

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The Faculty of Arts and Sciences
The American University at Cairo
Cairo, Egypt
March, 1945

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'The tale is the epic of an episode in the manifestation of reason. It tells how a particular direction of reason emerges in a race by the long preparation of antecedent epochs, how after its birth its subject-matter gradually unfolds itself, how it attains its triumphs, how its influence moulds the very springs of action of mankind, and finally how at its moment of supreme success its limitations disclose themselves and call for a renewed exercise of the creative imagination. The moral of the tale is the power of reason, its decisive influence on the life of humanity. The great conquerors, from Alexander to Caesar, and from Caesar to Napoleon, influenced profoundly the lives of subsequent generations. But the total effect of this influence shrinks to insignificance, if compared to the entire transformation of human habits and the human mentality produced by the long line of men of thought from Thales to the present day, men individually powerless, but ultimately the rulers of the world.'

— ALFRED NORTH WHITEHEAD

PART ONE

INTRODUCTION

Chapter I. PHILOSOPHY

A. INTRODUCTORY

WE BEGIN this short dissertation by stating a fundamental difference between man and the lower animals. John Dewey expresses it in the opening sentence of his RECONSTRUCTION IN PHILOSOPHY: 'Man differs from the lower animals because he preserves his past experiences.'[1]

By preserving some of his past experiences, man is able to discover similarities and relations among the elements of his experience. 'A fact is nothing except in its relation to other facts.'[2] Friedrich Paulsen observes that man 'does not rest until he has combined them into a systematic conception of the whole.'[3] Sir James Jeans remarks that 'it would be a dull mind that could see the rich variety of natural phenomena without wondering how they are interrelated.'[4]

In this way philosophy may be said to arise. Whether it begins in wonder, as it did among the ancient Greeks[5], or in doubt and perplexity[6] and discontent[7] as it did in modern times, in a sense 'every human being that rises above the dull level of animal life has a philosophy.'[8]

B. PHILOSOPHY — ITS AIM AND CHARACTERISTICS

PHILOSOPHY is a term whose meaning and value have varied considerably according to its usage by different writers at different periods.[9] In this paper we will not attempt to compress the term 'philosophy' within the limits of a formal definition. It will be profitable, however, to outline its main, generally recognized, aim and characteristics.

According to A.S. Pringle-Pattison, the subject matter of philosophy is 'the nature of the real world, as that world lies around us in everyday life, and lies open to observers on ever side.'[10] Today, this subject matter is dealt with in great detail by the special sciences. The specialists in these sciences, however, have tended to lose sight of the whole of experience.[11]

There always arises the need, therefore, of some general science that would attempt to combine these special sciences and co-ordinate their activities, as well as to examine their basic assumptions[12] and build general standards for their further development. The synthesis of the parts is more important than the detailed knowledge of the separate sciences; and philosophy is concerned with this 'ultimate synthesis'.[13]

Thus, philosophy becomes the 'general science whose business it is to unite the general truths furnished by the particular sciences into a consistent system.'[14] 'Philosophy is the integration of knowledge, the synthesis of the sciences.'[15] It claims to be 'the science of the whole'.[16] It attempts 'to think truly about human experience as a whole; or to make our whole experience intelligible.'[17] It 'hopes to integrate our knowledge, to unify and interpret it.'[18] It 'aims to interpret what is common to all fields, and to understand the relations of the special sciences to each other.'[19]

'The aim of philosophy (whether fully attainable or not) is to exhibit the universe as a rational system in the harmony of all its parts; and accordingly the philosopher refuses to consider the parts out of their relation to the whole whose parts they are.'[20]

Philosophy, therefore, is intended to be something more than merely the unification of the special sciences. 'It craves some ultimate explanation of things – their first cause, their moving cause, their purpose, their meaning, their value.'[21] It must satisfy not only our scientific interests, but also our moral and aesthetic and religious needs at every period; 'these too are facts which any system of thought must consider.'[22]

Finally, to quote E. S. Brightman:

'The unique contribution of philosophy to human life is that it furnishes a tool for the interpretation of the meaning and goal of life; a background, which gives unity to our science, our art, our literature, our morals, our religion, indeed to our whole civilization and also to our most intimate personal experiences.'[23]

C. PHILOSOPHY AND OTHER ACTIVITIES

PHILOSOPHY, being such a vast field, can hardly be separated from other fields of human interest.

According to J. S. Mackenzie, the value of philosophy 'is often to be found, not so much in any actual discovery that is made as in the general outlook upon human life that is gained in its pursuit.'[24]

Poetry may be said 'to aim at the same kind of insight as that which philosophy seeks to gain.'[25] The manner, however, in which this kind of insight is pursued is different in the two fields. According to J. S. Mackenzie, the truth sought in poetry is 'felt' rather than 'thought out' as in the case of philosophy.[26] Yet, as R. B. Perry remarks, those poets who seek to interpret life may well be considered as philosophers.[27]

An intimate relationship may be said to exist between philosophy and religion. While philosophy, however, attempts to obtain some 'unifying conception of the world which shall enable us to grasp its meaning in our thought', religion attempts to secure 'an actual unity or harmony between the individual and the world' through a 'personal relation between man and the powers of the Universe.'[28]

D. PHILOSOPHY AND CIVILIZATION

THE WISDOM of every epoch is expressed in the philosophy of that particular period. Humanity 'utters its wisdom and its will through the philosophers.' We live in a historical world and all epochs are not identical. Every philosophy, therefore, is 'the expression of its own and only its own time.'[30]

However, every philosophic system is the outcome of those systems created before it. Philosophers are creatures of the past.[31] They are caught in the movement of history; they become entangled in tradition; and are affected by novel inventions and discoveries.

But philosophy does not remain simply 'a passive reflex of civilization'. The philosophic product of an epoch may be said to contain the germs of the succeeding epochs; it provides the raw material and the starting point for the ages that follow.

Hence, according to J. E. Erdmann, all the different systems of philosophy are merely the development of a single philosophy.[32] John Dewey has stated a similar notion:

'Philosophies which emerge at distinctive periods define the larger patterns of continuity which are woven in effecting the longer enduring junctions of a stubborn past and an insistent future.'[33]

E. CONCLUSION

OSWALD SPENGLER has said that 'the test of value to be applied to a thinker is his eye for the great facts of his own time'.[34] Today, in the middle of the twentieth century A.D., the fact that we live in a changing world is being brought to our attention more forcibly than ever before in the history of civilization. 'A change which strikes to the very foundation of things is upon us.'[35] During the present century important changes have taken place not only in our means of communication and methods of hygiene and warfare but also 'fundamental changes have gone on in the basic processes of our "thinking" and these are only beginning to affect, and to affect profoundly, our everyday lives'.[36]

This rapid change has brought about a great crisis — a crisis in our individual and public lives as well as in our national and international institutions, a crisis in the rapid development of tools as well as in the use we make of them. This situation is best described by Max Planck in the following passage:

'We are living in a very singular moment of history. It is a moment of crisis, in the literal sense of that word. In every branch of our spiritual and material civilization we seem to have arrived at a critical turning point. This spirit shows itself not only in the actual state of public affairs but also in the general attitude towards

values in personal and social life. Many people say that these symptoms mark the beginnings of a great renaissance, but there are others who see in them the tidings of a downfall to which our civilization is fatally destined.'[37]

This critical situation in which we find ourselves inevitably brings to our attention a great number of questions — about the reasons for the present state of our civilization, about its past, and about its future.

What are we to do? is the cry that rises today from every quarter. 'Reflective thought' answer the philosophers. 'More science' say the men in the laboratories. 'More religion!' cry the priests from the pulpits. And the common man, 'The Celebrated Man In The Street', the hero of our century, stands bewildered in the midst of it all and feels with the poet Housman, 'I, a stranger and afraid, in a world I never made.'

In whatever hands we place our destinies we must keep in mind the following words of John Dewey:

'Illumination or direction to our confused civilization ... can proceed only from the spirit that is interested in realities and that faces them frankly and sympathetically.'[38]

In the following pages we will present an outline of General Semantics, a new methodology formulated by Alfred Korzybski, and will show how it attempts to answer the questions we have set above.

A. INTRODUCTORY

Professor Oliver L. Reiser writes:

> 'Few today would contest the observation that "modern civilization" ... is approaching the end of its life cycle ... An old world is dying; perhaps a new world is being born ... Those of us who feel that before we try to look ahead we should glance back and try to understand the world that was, and why it failed, will want to pause for a moment and retrospect. Before the pageant of Western civilization slips into some recess of historical archeology, let us look it over and get an indelible imprint of its main features.'[39]

ALFRED KORZYBSKI, in his SCIENCE AND SANITY, roughly divides the history of civilization into three stages, each stage having gradually evolved from its predecessor. During the 'primitive' period, with 'literal identification' as the one-valued standard of evaluation, science was not possible. With the advent of the 'aristotelian' period[40], evaluation came to be based on symmetrical relations of 'identity' and also partial 'identity' (represented by our two-valued 'laws of thought'); during this period the beginnings of science became possible. Lately, however, scientists found that they invariably had to build new standards of evaluation of a distinctly, although as yet unrealized, 'non-aristotelian' character, based on asymmetrical relations and other relations of an infinite-valued nature, as will be shown later in the paper.[41]

Korzybski then proceeds to demonstrate that our individual and social maladjustment is due to the chasm created between human affairs and science. Whereas science has already entered the non-aristotelian stage, we, in our personal lives, daily language, and social institutions, still preserve aristotelian standards of evaluation created thousands of years ago. These standards Korzybski proves to be out of conjunction with our knowledge of the world and ourselves (today) as given to us by the latest developments in the fields of the natural sciences and psychiatry. Furthermore, he demonstrates that these standards actually impede the development of the sciences.[42]

In his MANHOOD OF HUMANITY Korzybski had defined progress as 'a cumulative process of co-ordinating "ideas" with "reality"'.[43] He demonstrates that at present we find a measure of exactness in these correlations in the physical sciences. He agrees with Spengler in that 'all forms of human activities are interconnected'.[44] For 'sanity' and progress, however, there must be full coordination of all human activities, including the physical ('exact') sciences as well as the social sciences and daily language, and their unceasing adjustment to 'reality', i.e. to 'the conditions and possibilities inherent in the structure of the world', ourselves included. According to Korzybski, the social sciences (and human affairs in general) have lagged behind (advancing only at an arithmetic rate, as compared to the geometric rate in the development of the physical sciences), hampered by primitive standards of evaluation, infantile, affective identifications, and the use of our daily language whose structure proves to be dissimilar to the structure of the world and ourselves (according to the knowledge of today). Korzybski shows this retardation to be inherent in the aristotelian system.[45]

B. AIM AND MEANS

THE AIM of Korzybski, first announced in his MANHOOD OF HUMANITY, has been the construction of the foundation for a Science of Man; as Cassius J. Keyser has described it,

> '... the greatest of all the sciences ... the science, that is, of the science-maker and the maker of the arts as well, the science of the great achiever and the great blunderer, creator and destroyer, potentially sane, unsane, and insane, criminal, genius, imbecile, and saint.'[46]

The first task in building a science of man was to produce a modern, scientific, FUNCTIONAL definition of man, which, at the same time, would sharply differentiate man from animals.[47] In his MANHOOD OF HUMANITY Korzybski called the special characteristic which sharply distinguishes man from animal the TIME-BINDING CAPACITY of humans. This is based on the observation

that, in the rough, 'each generation of humans, at least potentially, can start where the former generation left off' and 'collect all known experiences of different individuals.'[48] Emphasizing this functional definition of man as a time-binder, Dr. Keyser remarks:

'No science of man can be erected upon the biological conception of man as an animal nor on the theological conception of man as a degenerate or fallen creature dependent for well-being upon some miracle of redemptive grace.'[49]

The achievement of the above aim necessitated investigation of the mechanism of time-binding. This enquiry, embodied in SCIENCE AND SANITY, represents

'... a further analysis of the sharp differences between the reactions of animals and humans, which became the psycho-physiological foundation of a non-aristotelian system and a theory of sanity.'[50]

The task involved years of hard labor in all fields of science, and especially in the study of mathematics (which according to Korzybski represents human behavior at its best), and in the study of 'insanity' (human behavior at its worst).[51]

The outcome of this work is described by Korzybski in the following passage:

'The result of this enquiry turned out to be a non-aristotelian system, the first to be formulated, as far as I know, and the first to express the very scientific tendency of our epoch, which produced the non-euclidean and non-newtonian (Einstein's and the newer quantum theories) systems. It seems that these three, the non-aristotelian, non-euclidean, and non-newtonian systems are as much interwoven and interdependent as were the corresponding older systems. The aristotelian and the non-aristotelian systems are the more general, the others being only special and technical consequences arising from them.'[52]

C. AN OUTLINE OF GENERAL SEMANTICS

Korzybski writes:

'In the rough, all science is developing in the non-aristotelian direction ... Our human relations at present are still mostly based on the aristotelian system.'[53]

Therefore, in order to build a science of man, Korzybski undertakes in his SCIENCE AND SANITY a general formulation of the non-aristotelian systems now in the process of development, basing himself on the latest discoveries of science (including mathematics and psychiatry) about the structure of the world (our nervous systems included).

General Semantics[54] becomes the modus operandi of such a non-aristotelian system, 'the formulation of a new, non-aristotelian system of orientation which affects every branch of science and life'.[55] 'It is a new extensional discipline which explains and trains us how to use our nervous systems most efficiently.'[56] 'It recognizes neuro-linguistic and neuro-semantic environments as unavoidable conditioning environments, and considers "mental" illness, science and mathematics as types of human reactions.'[57] It 'formulates a new experimental branch of natural science, underlying an empirical theory of HUMAN EVALUATIONS AND ORIENTATIONS (based on the action and reaction of the human nervous-system-in-an-environment)[58]; involving definite neurological mechanisms, present in all humans'.[59]

1. A non-aristotelian system, to be of any semantic value at all, must be based on, and start with, the structural metaphysics or structural assumptions as given by the science of our day. The first step in the building of such a system, therefore, will be to study the science of today, including mathematics and psychiatry, and so determine these structural data (and assumptions where data are lacking).[60]

2. The non-aristotelian system is based on fundamental NEGATIVE premises; namely, the complete denial of 'identity', and the denial of 'isolation'.[61]

a. NON-IDENTITY. Identity (i.e. 'absolute sameness in all respects') is nowhere to be found; and it appears as a structural impossibility in a world of ever-changing processes and a human world of indefinitely many orders of abstractions.[62] Thus a word IS NOT the object spoken about.[63]

b. NON-ISOLATION. According to the modern theory of materials, the mutual interdependence and interrelation, the mutual action and reaction of everything in the world upon everything else appears as a structural fact and a necessity. There-fore, there is NO such thing as an object in absolute isolation.[64]

These assertions are NEGATIVE and EXPERIMENTAL, and CANNOT BE DENIED; moreover, being negative, they are of much security and give us perhaps the safest pos-itive knowledge.[65] 'The negative judgment is the peak of mentality', wrote A. N. Whitehead.[66]

3. All human statements involve a STRUCTURAL METAPHYSICS. We cannot define all our terms. In General Semantics we start with UNDEFINED TERMS which we deliberately and ex-plicitly state. We assume the MINIMUM, although no set of undefined terms is 'ultimate'. The most important undefined term we use is ORDER (in the sense of 'betweenness'); we also employ the terms RELATION and STRUCTURE (both of which are interconnected with ORDER).[67]

4. In nature we find a NATURAL ORDER, established chronologically: (a) the EVENT (sub-microscopic, four-dimensional process) came first; (b) only later abstracting organisms happened, and OBJECTS, which represent the results of abstracting by organisms, came next; (c) in the process of evolution, we find OBJECTS first, LABELS next; (d) DESCRIPTIONS first, INFER-ENCES next.[68]

5. Therefore, the NATURAL ORDER OF EVALUATION, established by SURVIVAL, and for SURVIVAL, appears to be as follows: (a) the most important level is represented by the EVENT; (b) the OBJECTIVE level (un-speakable, macroscopic) comes next in importance; (c) the VERBAL levels come next, of which DESCRIPTIONS come first, and INFERENCES next.[69]

6. Characteristics of languages. (a) A LANGUAGE, like a map, may have a STRUCTURE similar (a one-to-one correspondence — Bertrand Russell[70]) or dissimilar to the structure of the world. (b) Words, like maps, ARE NOT the things they represent (non-identity). (c)Words, like maps, do not describe ALL they represent (non-allness). (d) Languages, like maps, have SELF-REFLEXIVE characteristics (Josiah Royce) — leading to the theory of MULTIORDINALITY of our most important terms (terms with different meanings on different levels of abstraction).[71]

7. STRUCTURE appears to be the only possible link between the objective (un-speakable) and the verbal levels. The only possible 'content of knowledge' becomes exclusively STRUCTURAL. The only aim of 'knowledge' is found, first, in an empirical investigation of the unknown STRUCTURE of the world, and only afterwards adjusting the structure of languages so that they would be similar, and so of maximum usefulness.[72]

8. MATHEMATICS appears as a very limited but the only LANGUAGE in existence which is in the main similar in structure to the world around us and to the nervous system. Thus, the study of mathematics as a form of human BEHAVIOR appears necessary prior to the possibility of formulating any laws of semantics.[73]

9. NON-ELEMENTALISTIC (non-split) structures:

a. Any organism functions as-a-whole-in-an-environment, and must be treated as such. The behavior of the organism-as-a-whole-in-an-environment results, ac-cording to C. M. Child, 'first, from patterns already present, and, second, from the possibilities of further development and integration in response to particular ex-ternal factors.'[74]

b. SPACE-TIME. Following Einstein and Minkowski, 'space' and 'time' CANNOT BE SEPARATED EMPIRICALLY. 'Only a kind of union of the two will preserve an independent reality', wrote Hermann Minkowski.[75]

10. Not all parts of the human nervous system are of equal phylogenetic age. The neurological ORDER is found to be as follows: the 'cerebral cortex' (phylogenetically younger), the functioning of which is connected chiefly with the higher associations, is of such structure that no nervous im-pulses can enter it without first passing through the lower centers of the ventral parts of the brain and 'brain-stem'.[76]

11. Neurologically, our nervous system ABSTRACTS in different levels; i.e. 'selects', 'picks

out', etc., always leaving out characteristics[77], since our nervous systems cannot register ALL (physical) vibrations[78] (non-allness). Established by SURVIVAL, and for SURVIVAL, the NATURAL ORDER of abstracting appears as follows: the OBJECT (with a large, but FINITE number of characteristics) represents an abstraction of our nervous system from the EVENT (ever-changing PROCESS with infinite numbers of characteristics); the VERBAL level represents a still higher abstraction from the event, (with fewer characteristics than the OBJECT).[79] Thus the natural direction of the process of abstraction proceeds from lower to higher abstractions.[80] The number of orders of abstractions that a man can produce is, in principle, UNLIMITED (mechanism of time-binding); whereas the number of orders of abstractions that an animal can produce is LIMITED.[81] The differentiation between lower and higher abstractions appears fundamental, although they cannot be completely separated.[82] 'Consciousness' is thus established as 'consciousness of abstracting' (existing only among humans), i.e. 'AWARENESS that in our process of abstracting we have LEFT OUT characteristics.'[83]

12. DIFFERENCES AND SIMILARITIES. We start structurally CLOSER TO NATURE on the un-speakable levels and MAKE DIFFERENCES FUNDAMENTAL. SIMILARITIES appear only as a result of the action of our nervous system, which cannot register absolute differences. 'Intelligence' of any kind is connected with ABSTRACTING (non-allness), a characteristic of all proto-plasmic response. In a world of only absolute differences without similarities, recognition, and therefore, 'intelligence' would be impossible. SIMILARITIES are thus structurally less fundamental than DIFFERENCES, but no less important.[84]

13. INTENSIONAL orientations are based on 'a priori' verbal definitions, associations (discoverable by 'logical' analysis), etc., largely disregarding empirical observations. EXTENSIONAL orientations (employed in modern mathematics, physics, etc.) are based on ordering observations, investigations, etc., FIRST, and verbalization afterward. The EXTENSIONAL method is the only one which is in accordance with the structure of our nervous system as established by survival; while the intensional method involves the reversal of the natural order, and therefore must lead to pathological semantic reactions and non-survival.[85]

14. The SEMANTIC REACTIONS of the organism-as-a-whole can be described as 'the psychological (non-elementalistic) reactions of a given individual to words and language and other symbols and events IN CONNECTION WITH THEIR MEANINGS.'[86]

'The old (aristotelian) orientations are being perpetuated, as a rule unknowingly, through the aristotelian structure of our language, our institutions, etc.'[87]

Finally, to quote Korzybski:

'The aim of the work of Aristotle and the work of the non-aristotelians is similar, except for the date of our human development and the advance of science. The problem is whether we shall deal with science and scientific methods of 350 B.C. or of 1941 A.D. In General Semantics, in building up a non-aristotelian system, the aims of Aristotle are preserved yet scientific methods are brought up to date.'[88]

D. CONCLUSION

Professor Wendell Johnson writes:

'Perhaps the outstanding contribution of Korzybski lies in the degree to which he has succeeded in formulating the general methodology of science ... and in relating that method to problems of personal and social organization.'[89]

Alfred Korzybski has attempted a general formulation of the non-aristotelian systems in the process of development in the natural sciences in order that individuals and our social institutions may benefit to the utmost from the discoveries of these sciences; and, at the same time, in order that the sciences themselves may follow their definite, 'natural' path at a greater rate, unimpeded by primitive, pre-scientific standards of evaluation.

Korzybski admits that the separate issues involved in general semantics are 'not entirely new'. However, 'their methodological formulation AS A SYSTEM which is workable, teachable, and so elementary that it can be applied by children, is entirely new.'[90]

The field covered by Korzybski's non-aristotelian revision is necessarily very wide and some of its consequences are unexpected. To mention a few of those already observed:[91] (1) the formulation of the non-aristotelian system supplies the scientists as well as the laymen with 'a general modern method of orientation, which eliminates the older psycho-logical block-ages and reveals the mechanism of adjustment';[92] (2) physicians and psychiatrists are given a definite PSYCHOPHYSIOLOGICAL mechanism, and cease disregarding each other's work;[93] (3) a physiological foundation for 'mental' hygiene is formulated, 'which turns out to be a most general PREVENTIVE psychophysiological experimental method';[94] (4) on the above grounds it points out the 'childhood of humanity' indicated by the INFANTILISM in our present private, public, and international situations;[95] (5) the MULTIORDINALITY of our most important terms is discovered, thus removing psycho-logical blockages and establishing a basis for agreement;[96] (6) it establishes STRUCTURE as 'the only possible content of knowledge';[97] (7) our language, and our social institutions dependent on it, are revised through non-aristotelian orientations and brought to the level where they can follow the advances of, and co-ordinate their activities with, the natural sciences; (8) the results of science become available for the benefit of all mankind for 'constructive' purposes; (9) definite methods are provided for the non-aristotelian training of children and adults for general sanity and survival.[98] This last point is of huge importance, because, to quote Korzybski:

> '(1) The majority of avoidable human private, social, economic, national, international, and even scientific difficulties depend on the misuse of the human nervous system. (2) All existing home, school and university educations involve those pathological factors, and so we ACTUALLY train our children toward the relevant and general un-sanity.'[99]

For sanity and survival it is essential to do mainly two things. First, to revise the language of daily use in order that its structure may be similar to the structure of the world as we know it today through science; and second, to train children and adults in the CONSCIOUSNESS of abstracting, involving the avoidance of identification and confusion of orders of abstractions.[100]

The EXPERIMENTAL value of the system (on which Korzybski insists) is demonstrated in the proceedings of the two American Congresses on General Semantics held already. Hundreds of reports presented indicate the vast applicability of the theory in widely separated fields, and especially in psychiatry and education.[101]

With this short (and perhaps inadequate) outline of General Semantics as a basis, it will be our task in the following pages to examine briefly a few themes and basic notions in philosophy.

PART TWO

A NON-ARISTOTELIAN STUDY OF PHILOSOPHY

Chapter III. ARISTOTELIAN ORIENTATIONS

A. INTRODUCTORY

Alfred Korzybski writes:

'Both the aristotelian and the non-aristotelian systems affect our lives deeply, because of psycho-logical factors and the immediacy of their application. Each is the expression of the psycho-logical tendencies of its period.'[102]

FOLLOWING the short outline of General Semantics presented in Chapter II, we begin this part by stating a fundamental requirement for our subject: for sanity, any system or language, to be of maximum usefulness, should in structure be similiar to the structure of the empirical world (including our nervous system) as we know it today.[103]

Korzybski undertakes to prove in SCIENCE AND SANITY that

'... the aristotelian system and language which we inherited from our primitive ancestors DIFFER ENTIRELY IN STRUCTURE from the well-known and established structure of the world (today).'[104]

The language of daily use gives us a form of representation of great antiquity, and scientists discovered long ago that it is of little value in science.

'Too little do we realize what a hindrance a language of antiquated structure is. Such a language does not help, but actually prevents, correct analysis through the semantic habits and structural implications embodied in it.'[105]

Before beginning our study, however, it is important to observe the following remarks of Bertrand Russell:

'Every language has, as Mr. Wittgenstein says, a structure concerning which, IN THE LANGUAGE, nothing can be said, but that there may be another language dealing with the structure of the first language, and having itself a new structure, and that to this hierarchy of languages there may be no limit.'[106]

As it appears impossible to analyse the structure of our daily language by using the same language of aristotelian structure,[107] Korzybski has formulated a non-aristotelian system in order to examine profitably the aristotelian system.

B. LINGUISTIC STRUCTURES

Our problem is to determine whether the structure of our aristotelian language is similar to the structure of the world as revealed to us by the science of our day.

The main semantic factors that we find in the aristotelian system and in need of revision are, according to Korzybski, the subject-predicate form, the 'is' of identity, and the elementalistic structures. These are found to be

'... the foundation of the insufficiency of this system and represent the mechanism of semantic disturbances, making general adjustment and sanity impossible.'[108]

These doctrines, according to Korzybski,

'... have come down to us, and through the mechanism of language the semantic disturbing factors are forced upon our children. A whole procedure of training in delusional values was thus started for future generations.'[109]

Our primitive ancestors PROJECTED their own 'feelings' into the outside world and identified them with the outside events, most of which were personified (anthropomorphism). In dealing with particular OBJECTS they had to invent names for them, or 'substantives'. Even such 'feelings'

as 'color', 'heat', 'soul', etc., which actually were not 'substantives' became 'substantives', grammatically speaking. As the statements of our primitive ancestors involved some kind of structural metaphysics (however simple), it is those 'feelings' and savage speculations which formed the basis of 'this most important tool of daily use' — language. And 'once the language was built, and, particularly, systematized,' says Korzybski,

'these primitive structural metaphysics and semantic reactions had to be projected or reflected on the outside world — a procedure which became habitual and automatic.'[110]

1. THE SUBJECT-PREDICATE FORM. According to A. N. Whitehead,

'... the subject-predicate habits of thought ... had been impressed on the European mind by the overemphasis on Aristotle's logic during the long mediaeval period.'[111]

According to Korzybski, a fundamental structural defect and insufficiency of the aristotelian system was that 'it had no place for "relation", since it assumed that everything could be expressed in a subject-predicate form'.[112] In a system without RELATIONS we are deprived of one of the most important structural means for representing the world and ourselves.

The subject-predicate form — 'a trap set for philosophers by the syntax of language' as Whitehead calls it[113] — is perhaps adequate in expressing symmetrical relations (such as equal, similar, dissimilar, etc.) in terms of a common 'property'; but it fails to express adequately asymmetrical relations (such as before, after, greater, more, above, part, etc.) which are the most important relations we employ (ORDER being fundamental).[114] Moreover, we cannot account adequately for asymmetrical relations in terms of 'properties' because, generally, only the difference in the magnitude of the 'property' is stated, without designating the greater. If, for example, A is greater than B (asymmetrical), and we merely state that they are unequal (symmetrical), we do 'not give an adequate account of the structural facts at hand', since we imply the possibility that B is greater than A, 'which is false to facts'.[115]

To illustrate the above, we will mention an example given by Korzybski: The relation between 'observer' and 'observed' is obviously asymmetrical. This relation, however, is inadequately expressed by the subject-predicate form in such a sentence as 'The leaf appears green to me.' Being expressed as a symmetrical relation it implies the possibility that 'I appear green to the leaf.' which is certainly 'false to facts', since it disregards ORDER.[116]

Concerning the subject-predicate form Bertrand Russell writes:

'The belief or unconscious conviction that all propositions are of the subject-predicate form — in other words: that every fact consists in some thing having some quality — has rendered most philosophers incapable of giving any account of the world of science and daily life.'[117]

Finally, to quote A. N. Whitehead again:

'All modern philosophy hinges around the difficulty of describing the world in terms of subject and predicate, substance and quality, particular and universal. The result always does violence to that immediate experience which we express in our actions, our hopes, our sympathies, our purposes, and which we enjoy in spite of our lack of phrases for its verbal analysis.'[118]

2. THE 'IS' OF IDENTITY. To quote Augustus de Morgan:

'The complete attempt to deal with the term IS would go to the form and matter of everything in EXISTENCE, at least, if not to the possible form and matter of all that does not exist, but might.'[119]

We have already stated Korzybski's principle of NON-IDENTITY; every assertion of identity is false-to-facts.[120] Consequently, he emphasizes that the 'is' of identity must be entirely abandoned.[121]

According to Korzybski, through the 'is' of identity we unconsciously identify different orders of abstractions, 'in obvious contradiction to empirical facts'.[122] and this leads us inevitably into 'semantic disturbances of wrong evaluation' and 'pathological results'.[123]

For instance, as an answer to the question, 'What IS an object?' we can only say, 'An object IS an object' — a statement which obviously tells us nothing. However, the question itself involves the identity of the objective (un-speakable) level with words, 'which once stated, becomes obviously false-to-facts,'[124] for whatever we may SAY an object 'IS', IT IS NOT; 'the statement is verbal, and the facts are not.'[125] Also, in using the 'is' of identity in definitions or classifications, such as 'John Smith IS a man', we express the IDENTITY of a proper name (lower order abstraction) with a class name (higher order abstraction), which leads to the confusion of different levels of abstractions. Korzybski observes that,

> 'This confusion leads automatically to disturbed evaluation in life, because the characteristics of a class are NOT the "same" as, nor identical with, the characteristics of the individual.'[126]

Korzybski also reminds us that we should not confuse the four entirely different uses of the verb 'to be' in the Indo-European languages: namely, (1) an auxiliary verb — 'he IS writing'; (2) the IS of predication — 'the leaf IS green'; (3) the IS of 'existence' — 'he IS'; (4) the IS of identity — 'John Smith IS a man'. To quote Korzybski:

> 'The fact that four semantically entirely different words should have one sound and spelling appears as a genuine tragedy of the race; the more so since the discrimination between their uses is not always easy.'[127]

Since it is extremely difficult to avoid entirely the 'is', we must be careful not to use it as an identity term.[128]

Korzybski emphasizes the fact that 'the "is" of identity plays a great havoc with our semantic reactions, as any "identity" is structurally false to fact.'[129] For instance in the life of an infant it plays 'an important semantic role'. As soon as he begins to speak he is trained in the 'is' of identity, through which symbols are identified with the un-speakable events, objects, and actions.[130] What the infant 'wants' 'is' an 'apple', thus identifying the WORD 'apple' with the OBJECT and with the EVENT (physico-chemical process). Such identification is false to facts and 'can never be entirely reliable'.[131] Although the infant cannot know about this identification, yet, if it is not checked intelligently, it becomes:

> '... a pernicious semantic factor in his grown-up reactions, which preserve the infantile character and with which ADULT adjustment and semantic health is impossible.'[132]

The non-aristotelian system is not only based on the complete rejection of the 'is' of identity, but also provides detailed methods[133] for 'the elimination of these relics of the animal, the primitive man, and the infant in us.'[134]

C. ELEMENTALISTIC STRUCTURES

We have already noted our fundamental semantic problem:

> 'A language, to be most useful, should be similar in its structure to the structure of the events which it is supposed to represent.'[135]

In this section we will note that the aristotelian structure of our language is in the main ELEMENTALISTIC; that is, it separates VERBALLY what are not separate, and cannot be separated, EMPIRICALLY.[136] We repeat Korzybski's principle for orientation: 'There is NO such thing as an object in absolute isolation.'[137]

1. THE ORGANISM-AS-A-WHOLE. Ample structural data prove beyond any doubt that THE ORGANISM FUNCTIONS AS-A-WHOLE,[138] and MUST BE treated as such. John Dewey has expressed a similar viewpoint in an address entitled 'The Unity of the Human Being'.[139] Thus, every division of the human organism into 'body' AND 'mind', 'emotion' AND 'intellect', 'senses' AND 'ideas', 'physical' AND 'mental' AND 'spiritual', 'feelings' AND 'thoughts', 'soul', 'spirit', etc. is fictitious and does not correspond to reality.[140]

According to Korzybski, this split of the human organism into 'body' AND 'mind' has been very pernicious and retarding for medicine, which until very recently was split into general

medicine, interested in the 'body' (soma), and psychiatry, interested in the 'soul' ('psyche'). 'The net result,' he writes, 'was that general medicine was a glorified form of veterinary science, while psychiatry remained metaphysical.' Only a few years ago was PSYCHOSOMATIC medicine formulated.[141]

Moreover, it is imperative to note that the organism is not found to be isolated from the environment; a fundamental relationship exits between the two.[142] To use the words of Charles M. Child:

> 'The organism is inexplicable without environment. Every characteristic of it has some relation to environmental factors. And particularly the organism as a whole, i.e., the unity and order, the physiological differences, relations and harmonies between its parts, are entirely meaningless except in relation to an external world.'[143]

Thus it is a fallacy to separate the 'observer' from the 'observed'. 'All that man can know is a joint phenomenon of the observer and the observed.'[144]

2. SPACE-TIME. Until the beginning of this century, 'space' and 'time' were considered as separate entities. It was Einstein who realized that:

> '... the empirical structure of "space" and "time" with which the physicist and the average man deals is such that it cannot be empirically divided, and that we actually deal with a blend which we have split only elementalistically and verbally into these fictitious entities.'[145]

With the help of the mathematician Minkowski, he formulated a system closer in structure to the facts of experience which employed A NON-ELEMENTALISTIC LANGUAGE of SPACE-TIME.

To quote H. Minkowski:

> 'Henceforth space by itself, and time by itself, are doomed to fade away into mere shadows, and only a kind of union of the two will preserve an independent reality.'[146]

With the introduction of the fourth dimension as inseparable from the spatial dimensions considerable dogmatism is exploded. 'Eternal verities' become valid only at a certain DATE; otherwise they remain meaningless noises, as the individual who utters them is never identical with himself.[147]

3. 'MATTER', 'SPACE', 'TIME'. Until recently the trend had been to treat each of these terms (of great antiquity) as a separate 'entity', generally DISREGARDING THE OTHER TWO. For instance, 'matter' was treated as 'something', regardless of its position or date. This was to a large extent due to the identification of the macroscopic object with the sub-microscopic process (event), caused by the disregard of space-time.[148]

'Space', another of those 'substantives' which has probably come down to us from ape-like ancestors'[149], was treated as 'absolute emptiness' or 'absolute nothingness', thus disregarding 'matter' and 'time'.[150] To use the words of H. Poincare, 'Space is only a word that we have believed a thing.'[151] The notion of 'walls' around 'space' soon arose among the primitives, with endless discussions throughout history concerning what there is supposed to be beyond the 'walls', leading to the notion of the 'supernatural' to account for such 'nature against human nature'.[152]

The notion of 'time' (another 'substantive') as a separate 'entity' led to the belief that 'time' must have a 'beginning' and an 'end'.[153] Innumerable controversies have resulted from this belief, familiar to most of us.

Korzybski repeatedly emphasizes that 'matter', 'space', and 'time' cannot be separated EMPIRICALLY:

> 'All that we deal with in the outside world involves indivisibly "matter", "space", and "time" ... Everything which happens must be structurally represented as something, somewhere, at some 'time'.[154]

4. 'SUBSTANCE'. The origin of the term 'substance' is perhaps similar to that of 'matter'.[155]

We recall Descartes' definition of 'substance' as 'something requiring nothing but itself in order to exist'.[156] The notion of 'substance' (so important in the history of modern philosophy) has been abandoned in modern physics, because it largely disregarded the fourth dimension; it stood for 'persistence through time'. Moreover, it has now become familiar that:

> '... the theory of relativity and the Heisenberg-Schrodinger theories of atomic structure have reduced "matter" to a system of events, each of which lasts only for a very short time.'[157]

and is necessarily connected with other events. Considering the differentiation of levels of abstraction, we may say that 'substance' on the macroscopic level is nothing but 'invariance of function' on the sub-microscopic level.[158]

5. GENERAL REMARKS. A. N. Whitehead in one of his Gifford lectures (1928) raised 'a protest against the "bifurcation" of nature ... fatal to a satisfactory cosmology'.[159]

The elementalistic structural characteristics of our language which we outlined in the foregoing paragraphs appear to be firmly rooted in our semantic reactions through the training in the aristotelian system.

> 'They result and lead to identifications and to blinding semantic disturbances, which, in turn, prevent clear vision and unbiased creative freedom.[160]

> '(this training) ... built for us a FICTITIOUS AND ISTIC WORLD not much more advanced than that of the primitives, a world in which under present conditions an optimum adjustment is in principle impossible.'[161]

Some of the non-elementalistic structures were understood and emphasized in the past, but they were never applied. Once they ARE APPLIED, then we have to build a NEW LANGUAGE, 'of different structure and, THEREFORE, NEW IMPLICATIONS, which suggest a long series of new experiments'.[162]

For example, in applying the non-elementalistic principle, any human 'psychology' must become PSYCHO-LOGICS. The term 'psychology', or 'theory of the mind', is elementalistic, treating the 'mind' as a separate 'entity'. Korzybski suggests that the term 'psychology' can be retained 'as applying to animal researches only'.[163] Among the other non-elementalistic terms that he introduces are 'semantic reactions', 'psychosomatic integration', 'orders of abstraction', etc., that DO NOT SPLIT the organism-as-a-whole on the verbal level.

As 'it is difficult to repress irrelevant ideas' — to use the words of Sir Arthur Eddington[164] — Korzybski suggests that the terms 'matter', 'substance', 'space', and 'time' 'should be completely eliminated from science', and, instead, we should use the terms 'events', 'space-time', 'material', 'plenum', 'fulness', 'spreads', 'times', etc.[165]

Finally, as Korzybski points out, the introduction of structurally important new terms might affect the whole structure of the language in the given field and lead to its re-postulation. And, by psycho-logical necessity, 'All our human institutions follow the structure of the language used'.[166]

D. ARISTOTELIAN 'LOGIC'

The traditional aristotelian 'logic', defined as the 'science of the laws of thought', did not, according to Korzybski, include 'ALL forms of human behavior connected directly with mentation'. It especially disregarded the study of our mentations when we use our 'mind' at its worst ('insane', 'mentally' ill, etc.), and at its best (as in science, mathematics, etc.).

> 'What has passed under the name of "logic" ... is not "logic" according to its own definition, but represents a philosophical grammar of a primitive-made language, of a structure different from the structure of the world, unfit for serious use.'[167]

1. The 'LAWS OF THOUGHT'. Korzybski emphasizes the fact that the traditional aristotelian 'logic' was essentially TWO-VALUED and was based on IDENTITY. As an example, he frequently cites the famous 'laws of thought'.[168]

'a. The law of identity: whatever is, is; or, A is A.
'b. The law of contradiction: nothing can both be and not be; or, A is not not-A.
'c. The law of the excluded middle: everything must either be or not be; or, every-
    thing is either A or not-A.'

The 'is' of identity (which Korzybski entirely abandons) plays a fundamental role in these three interconnected laws.[169] Having rejected identity altogether, Korzybski finds the law of identity false to facts, never applicable to dynamic processes.[170]

'In an actual world of four-dimensional processes and the indefinitely many
"aspects" manufactured by ourselves, adjustment in principle is impossible, or,
at best, only accidental, if we retain "identity".'[171]

Moreover, the notion 'A thing is what it is' rests on the assumption that the world is made up of static, independent, isolated objects — which does not happen to be the case.[172]

The second and third 'laws of thought' give the TWO-VALUED, 'either-or' character to aristotelian 'logic'. They establish 'as a general principle, what represents only a limiting case and so, AS A GENERAL PRINCIPLE, must be unsatisfactory.'[173]

2. The TWO-VALUED 'LOGIC'. According to Korzybski, the primitives (as well as the mentally ill) employ ONE-VALUED SEMANTICS 'which have left more or less marked traces in all of us', reflected in the prevailing IDENTIFICATION.[174]

The TWO-VALUED, 'either-or' orientation, inherent in the structure of the aristotelian system, appears to be at the foundation of present-day confusion.[175] Modern science had to aban-don this type of orientation (although it is still prevailing in certain fields).[176] For example, no science of thermodynamics could have been built on the basis of the two-valued (or few-valued) terms of 'cold' and 'warm'.[177] The creation of an infinite-valued orientation in the form of 'degrees of temperature' became necessary.

Criticizing another example of the two-valued orientation, namely, the terms 'true' and 'false', A. N. Whitehead gives the following illustration from the history of science:

'Galileo said that the earth moves and that the sun is fixed; the Inquisition said that
the earth is fixed and the sun moves; and Newtonian astronomers, adopting an absolute
theory of space, said that both the sun and the earth move. But now we say that any
one of these three statements is equally true, provided that you have fixed your sense
of "rest" and "motion" in the way required by the statement adopted.'[178]

In connection with our discussion on the two-valued 'logic', it will be interesting to notice Josiah Royce's observation that, IN CERTAIN ACTIVITIES, when we attempt to disprove the exist-ence or validity of certain forms of activity, we thereby reinstate and verify what we disprove. Thus, for example, in denying the existence of God, we thereby deny and affirm the existence of God.[179] To use Royce's own words:

'In brief, whatever actions are such, whatever types of action are such, whatever
results of activity, whatever conceptual constructions are such, ... the very act of
getting rid of them or of thinking them away, logically implies their presence...'[180]

3. 'CAUSE' AND 'EFFECT'. Following Weierstrass, Korzybski eliminates the 'infinitesimal', as however small a quantity we may have, it is still 'a perfectly good FINITE quantity'.[181]

Once the 'infinitesimal' is abolished, there is no 'next moment', for 'the interval between any two moments must be finite, and so there are always other moments in the interval between them'.[182] If the interval between two moments is finite, then anything might happen in between them. Thus, the 'same cause' cannot produce the 'same effect'. 'When we consider the everchanging environ-ment, the number of possibilities increases enormously.'[183]

The notion of 'cause' and 'effect' appears to be TWO-VALUED and of great antiquity, having led to unnecessary dogmatism and identifications. Korzybski demonstrates that today we deal in science with INFINITE-VALUED CAUSALITY, which appears to be 'closer to the structure of this world, as far as we know it'.[184] The two-valued verbal structure of 'cause' and 'effect' — 'a rash, limiting generalization from probability' — represents only statistical MACROSCOPIC averages, and does not apply to small-scale events.[185]

It is interesting to notice that one of the many fallacies created by the two-valued 'causality' is, to adapt the words of H. S. Jennings, that 'of attributing to one cause what may be due to many causes'.[186]

4. GENERAL REMARKS. Korzybski has undertaken 'to formulate a non-aristotelian, infinite-valued, NON-ELEMENTALISTIC semantics structurally similar to the world and our nervous system.

On the objective, un-speakable levels we deal exclusively with absolute (non-identical) individuals and individual situations. All statements, however, necessarily represent HIGHER order abstractions, i.e., we speak in more or less general terms, and, consequently, they represent only PROBABLE statements (in different degrees of probability). 'Thus, we are led to infinite-valued semantics of (maximum) probability, which introduces and inherent and general principle of uncertainty' in all statements.[187]

To conclude, Korzybski observes that in a non-aristotelian system, the older ELEMENTALISTIC 'PSYCHOLOGIES' AND 'LOGICS' must be transformed into unified NON-ELEMENTALISTIC PSYCHO-LOGICS and GENERAL SEMANTICS, 'possible only after studying all forms of human behavior, mathematics included', and which 'when generalized become an entirely general discipline applicable to all life, as well as to GENERALIZED mathematics'.[188] Once we realize that our aristotelian two- or few-valued 'logic' is applicable only to particular instances, but not to others, then many of our difficulties and problems disappear.

E. INTENSIONAL AND EXTENSIONAL ORIENTATIONS

The problem of INTENSION and EXTENSION, according to Korzybski, in many ways summarizes the fundamental differences between the aristotelian and the non-aristotelian systems. The difference between intension and extension had been recognized from the time of Aristotle and his followers but they never APPLIED it to 'human LIVING REACTIONS as LIVING REACTIONS, which can be predominantly intensional or predominantly extensional'.[189]

Korzybski illustrates the difference between these two types of orientation by giving examples of 'definitions'.

A 'definition' by INTENSION is given in terms of aristotelian 'properties'. For example, we may verbally 'define' 'man' as a 'rational animal', or — to use an expression by the poet Dryden — as an 'unfeathered two-legged thing', etc., 'which EVENTUALLY might apply to EVERYBODY and COVERS NOBODY'.[190] Actually it makes no difference which of these 'definitions' we may choose, because 'no listing of "properties" could possibly cover "all" the characteristics of $Smith_1$, $Smith_2$, etc., and their inter-relations'.[191] By intension, or mere verbalism, 'we have only ONE "man" ', while the world is made up of many absolute individuals; and so our STANDARD INTENSIONAL LANGUAGE FALSIFIES FACTS.'[192]

By EXTENSION we 'define' 'man' by exhibiting a class of individuals composed of $Smith_1$, $Smith_2$, $Smith_3$, etc., thus using a language of a structure similar to the structure of the world.[193]

We have already mentioned the natural survival order followed by the nervous impulses:

'In neurological terms, the nervous impulses should be received first in the lower centers and pass on through the sub-cortical layers to the cortex, be influenced there and be transformed in the cortex by the effect of past experiences. In this transformed state they should then proceed to different destinations, as predetermined by the structure established by survival values.'[194]

Thus, EXTENSION, by starting with absolute individuals, is in conformity with the proper survival order.

'Extension recognizes the uniqueness, with corresponding one-value, of the individual by giving each individual a unique name, and so makes confusion impossible.'[195]

INTENSION, on the other hand, represents the reversal of the survival order:

'... it starts with undifferentiated infinite-valued higher abstractions and distorts or disregards the essential one-values of the individuals and reads into them as UNIQUELY important, undifferentiated infinite-valued characteristics.'[196]

Therefore, Korzybski concludes:

'The extensional method is the only method which is in accordance with the structure of our nervous system as established by survival. Reversed intensional methods disorganize this normal mode of activity of the nervous system, and so lead toward nervous and "mental" illnesses.'[197]

To illustrate the above conclusions, Korzybski demonstrates that the progress of modern MATHEMATICS and mathematical 'logic' has been possible because of the use of the EXTENSIONAL method,

'... which starts with unique individuals, labels them by unique names and only then generalizes or passes to infinite-valued higher order abstractions like "numbers", etc.'[198]

We have mentioned before that chronologically (in the evolution of the human race and language), life facts came first and labels (words) next in importance. Korzybski points out that today, from childhood, 'under the spell of intensional and ignorant "philosophers" ', we teach words and language first, presenting the facts next in value.

'The existing systems and educational methods are ... largely following the reversal of the survival order of our nervous processes, ... unaware of the heavy neurological consequences.'[199]

F. GENERAL CRITICISM

In this section we will note some of the general consequences arising from our living by, and training in, the aristotelian system. Korzybski says:

'If we use languages of a structure non-similar to the world and our nervous system, our verbal predictions are not verified empirically, we cannot be "rational" or adjusted, etc. We would have to copy the animals in their wasteful and painful "trial and error" performances, as we have done all through human history. In science we would be handicapped by semantic blockages, lack of creativeness, lack of understanding, lack of vision, disturbed by inconsistencies, paradoxes, etc.'[200]

1. ON 'COPYING' ANIMALS. With the formulation of the theory of TIME-BINDING and the elaboration of the mechanism of time-binding, Korzybski has established a SHARP DIFFERENCE between the nervous reactions of animal and man.[201] With this observation as a criterion, Korzybski has demonstrated that 'nearly all of us, even now, COPY animals in our nervous responses'.[202] The reason for this is that 'copying' of parents (i.e., 'reproducing after a model'), in many respects 'began long before the appearance of man, who has naturally continued this practice until the present day'.[203] Thus, a great part of our semantic reactions appears to be 'intimately connected with reactions of a pre-human stage, transmitted from generation to generation'. The most important form that our copying of animals takes is represented, according to Korzybski, by

'... the copying of the comparative unconditionality of their conditional reflexes, or lower conditionality; the animalistic identification or confusion of orders of abstractions, and the lack of consciousness of abstracting, which, while natural, normal, and necessary with animals, becomes a source of endless semantic disturbances for humans.'[204]

It is this 'copying' of animals in our nervous responses which, according to Korzybski, leads to 'the general state of un-sanity reflected in our private and public lives, institutions, and systems'.[205]

2. ARISTOTELIAN STRUCTURES. We have noted how the aristotelian system was strictly interconnected with 'primitive-made structural assumptions or metaphysics'. Lately, it was necessary for every science to depart 'structurally and semantically' from aristotelianism and build its own language. This fact, according to Korzybski, 'completely condemns the aristotelian language, which, it is shocking to notice, we continue to preserve in our daily life'.[206]

For example, the existing 'logics' and 'psychologies' are, in general, 'structurally misleading', since they remain elementalistic in nature, and aristotelian or even pre-aristotelian. These very conditions, according to Korzybski,

'. . . necessitate the elimination of them, as well as other dependent disciplines, to prevent their being accepted as structurally fundamental.'[207]

In the aristotelian system, language, and 'psychology', for instance, it was assumed that the velocity of nervous impulses was infinite, i.e., spread 'instantaneously' ('in no time', to use an expression from ALICE IN WONDERLAND). Thus we have had perplexing philosophical problems and arguments concerning 'emotions', 'intellect', etc., which were taken as independent, separate 'entities'. In introducing explicitly the finite velocity of nervous impulses (120 meters per second, on the average, in the human nervous system), we are able, Korzybski says, 'to reach a perfectly clear understanding, IN TERMS OF ORDER, of the spread of impulses'. Here we realize the structural importance of ORDER. 'Some "infinite velocity" does not involve ORDER. Conversely, by considering the order of events, we introduce finite velocities.'[208]

3. IDENTIFICATION. At this point it seems important to note the following fundamental observation made by Korzybski:

'(today) it seems, beyond doubt, that IF any single SEMANTIC characteristic could be selected to account for the primitive state of the individuals and their societies, we could say, without making too great a mistake, that it would be found in IDENTIFICATION, understood in the more general sense as it is used in the present work (identification of different levels of abstractions).'[209]

We have seen that the LOWER ORDER ABSTRACTIONS are supplied by the lower nerve centers. They are DYNAMIC, 'continuous', non-permanent, non-stable, shifting, changing, unreliable, and above all un-speakable. Moreover, 'they have a character of immediacy, because, structurally in terms of order, they are closest to outside events'.[210] The HIGHER ORDER ABSTRACTIONS, on the other hand, are products of the functioning of the higher nerve centers, 'further removed from the external events and lacking, therefore, in immediacy'. These higher abstractions are STATIC, 'permanent', and so may be analyzed. 'They are, if properly treated, reliable and are uniquely responsible for our being time-binders.'[211]

By 'the structural necessity of our nervous system', the NATURAL ORDER, established by survival, appears to be lower order abstractions first, and higher next. We must note that NO ONE CAN AVOID THIS ('unless he is deprived of the higher nerve centers'). According to Korzybski, 'the lack of theories (of the proper functioning of our nervous system) . . . leads to, and must result in, identification or confusion of orders of abstractions.' We have the tendency of ascribing the characteristics of the higher order abstractions to the lower, as, for example, permanence, immutability, etc. This usually results in semantic disturbances such as fanatacism, absolutism, dogmatism, finalism, etc., which 'often become morbid semantic states'. Similarly, the ascribing of the characteristics of the lower order abstractions to the higher, such as fluidity, shiftiness, non-permanence, 'non-knowability', etc., usually results in such vicious semantic disturbances as pessimism, cynicism, disregard for science, bitterness, fright, hopelessness, mysticism, etc. And we must not forget that 'these in turn affect by structural necessity the proper working of the entire organism, which always works as-a-whole'.[212]

Korzybski points out that it is practically impossible to avoid identification under the aristotelian system; as the latter is based on 'identity' and symmetrical relations. Identification involves a 'semantic process of wrong evaluation'. In order to follow the 'natural order of evaluation', we must abandon identification.[213] To this effect, a special training in the CONSCIOUSNESS OF ABSTRACTING is required. Korzybski has outlined a definite technique, on the basis of which extremely encouraging experiments have already been conducted.[214]

4. CONCLUDING REMARKS. The aristotelian and other related systems were built before many of the above facts became structurally known. Moreover, according to Korzybski, these older systems were 'actually based on such confusion' which they 'perpetuated and made effective MECHANICALLY through the structure of language'.[215]

A. N. Whitehead has said that 'Every science devises its own instruments. The tool required for philosophy is language.'[216] However, if the language which we employ in philosophy is found to have a structure non-similar to the structure of the world and of our nervous system, then this language, to use Korzybski's words, 'is worse than useless, as it misinforms and leads astray'.[217]

Finally, Korzybski has demonstrated that the structure of our aristotelian language has been automatically and necessarily reflected in our doctrines, creeds, habits, semantic reactions, as well as in all our institutions based on this language. These, in turn, 'shape further semantic reactions and, as long as they last, control our destinies'.[218]

In the following chapter we will illustrate our criticism of the aristotelian system by studying a few of the traditional 'philosophical themes' on the basis of the new non-aristotelian system.

Chapter IV. PHILOSOPHICAL THEMES

A. INTRODUCTORY

WITH OUR criticism of aristotelian orientations as a basis, we will now proceed to study a few philosophical themes. Throughout the present chapter we will roughly follow the outline of G. T. W. Patrick's INTRODUCTION TO PHILOSOPHY.[219]

In dealing with the 'Cosmological' enquiries, we will limit our study to the problem of 'Mechanism and Teleology'. As for the enquiries concerning the Universe, etc., the reader is referred to Korzybski's discussion on the 'world' of Minkowski, the Einstein theory, etc., in Part IX of his SCIENCE AND SANITY.

We will have nothing to say about the so-called 'ontological' enquiries. An excellent summary of the recent discoveries on the structure of 'matter' will be found in Part X of SCIENCE AND SANITY. Here we simply need to point out that both 'materialism' and 'idealism' represent ELEMENTALISTIC attitudes.[220] Bertrand Russell believes that between 'mind' and 'matter' 'there is not a sharp line, but a difference of degree'.[221] In fact, the two terms split verbally what cannot be split empirically.

In the so-called 'Philosophy of Mind' it will be necessary to examine the 'Body-mind' problem, as well as the problem of 'Determinism and Indeterminism'.

We will then proceed to the problems of Epistemology, which we will deal with in greater detail, considering their importance in the history of modern philosophy.

B. MECHANISM AND TELEOLOGY

We will not attempt to recount the various arguments regarding the problem of 'mechanism and teleology', as they may be found in any standard textbook in philosophy.[222]

Korzybski dismisses 'teleology' by describing it as one of those philosophies which 'clearly display (such) infantile characteristics' as selfishness, might, brutal competition, acquisitiveness, etc., and which belong to an infantile level in our civilization.[223] Here our knowledge from psychiatry becomes useful. It appears that the notion of 'purpose in nature' represents a PROJECTION of our own feelings, moods, desires, etc., on the outside world.[224] In such a case, therefore, 'teleology' would represent — to use an expression by Korzybski — a 'meaningless noise'. And we know that:

> '... arguments about the "truth" or "falsehood" of statements containing noises are useless, as the terms "truth" or "falsehood" do not apply to them ... In cases where we make noises, and treat them as words, and this fact is exposed, then the "problems" are correctly recognized at once as "no-problems", and such solutions remain valid.'[225]

In general, arguments for 'teleology' may be said to involve the identification of what Bertrand Russell calls 'the philosophy of nature' with the 'philosophy of value'. To use Russell's own words:

> 'Nothing but harm can come of confusing them. ... In the philosophy of nature, we are subordinated to nature, the outcome of natural laws, and their victims in the long run. ... Vitalism as a philosophy, and evolutionism, show, in this respect, a lack of sense of proportion and logical relevance. ... But in the philosophy of value ... we are ourselves the ultimate and irrefutable arbiters of value, and in the world of value Nature is only a part. ... It is we who create value and our desires which confer value.'[226]

Moreover, it appears to us that 'teleology' itself is nothing but a 'mechanistic' doctrine. In this respect, it will be interesting to recall the remarks of Oswald Spengler:

> 'TELEOLOGY, that nonsense of all nonsenses within science, is a misdirected attempt to deal MECHANICALLY with the LIVING content of scientific knowledge (for knowledge implies someone to know, and though the substance of thought may be "Nature" the ACT of thought is history), and so with life itself as an inverted causality. Teleology is a caricature of the Destiny-idea. ...'[227]

We must never forget that once WE establish certain principles, or postulates (such as 'purpose in nature'), then in our behavior (religion included), as Cassius J. Keyser has well put it,

' ... the die is cast — all else follows with a necessity, a compulsion, an inevitability that are absolute — we are at once subject to a destiny of consequences which no man nor any hero nor Zeus nor Yahweh nor any god can halt, annul, or circumvent.'[228]

The age-old problem as to 'whether or not the "mechanistic" point of view of the world and ourselves is legitimate, or adequate' is, as we have already pointed out above, an example of 'identification of different levels of abstractions'. Korzybski points out that throughout history the term 'mechanistic' has been identified with 'machinistic'.[229] As an example of this identification, we will quote W. K. Wright:

'In this connection, some teleologists call attention to the fact that the very word "mechanical" etymologically related as it is to "machine" implies a tool manufactured for a practical purpose. The mechanical methods of explanation used in the sciences are simply artificial devices — tools or machines as it were — invented by man to carry out his purposes. In other words, mechanism itself, in the view of some philosophical teleologists, is a teleological device.'[230]

Korzybski, however, emphasizes the fundamental differences between 'mechanistic' and 'machinistic':

'Roughly, mechanics is a name for a science which deals with dynamic manifestations on all levels (of abstractions); thus, we have macroscopic classical mechanics, colloidal mechanics now being formulated, and the sub-microscopic quantum mechanics already being well-developed disciplines. In the rough, "machine" is a label applied to a man-made apparatus for the application or transformation of power.'[231]

The machinistic point of view of the world and ourselves appears unjustified and grossly inadequate, and should be entirely abandoned. We must retain, however, the mechanistic point of view, 'understood in its modern sense and including the quantum mechanics point of view, which is entirely STRUCTURAL'. Today we know positively that the gross macroscopic characteristics with which we are dealing in everyday life depend on the sub-microscopic STRUCTURE; and as we know that STRUCTURE is the only possible content of 'knowledge', the above principle, according to Korzybski, becomes 'irreversibly established'.

'We may go further and say that the quantum mechanics point of view becomes the first structurally correct point of view and, as such, should be accepted fully in any sane orientation.'[232]

Once we stop identifying different levels of abstractions, then the 'problem' ceases to be one.

C. THE 'BODY-MIND' PROBLEM

'The mind-body problem', Patrick reminds us, 'is almost as old as the history of philosophy.'[233] Plato began, in the 'Doctrine of Ideas', to split human beings into 'body' AND 'mind'; and since the time of Descartes, the problem

' ... has caused great anguish among both philosophers and psychologists and is one of the "seven world-riddles", which have been said to be incapable of solution.'[234]

We have repeatedly emphasized above the fact that the organism works as-a-whole. Moreover, the structure of our nervous system appears to be in ORDERED LEVELS, and 'all levels go through the process of abstracting from other levels'. PRACTICALLY, 'abstractions of lower order' may be said to correspond roughly to 'senses', or immediate 'feelings', i.e., 'body'; and 'abstractions of higher order' may be said to correspond roughly to 'mind' and 'mental' processes. It should be understood, however, that by implication NEITHER EXPRESSION ELIMINATES THE OTHER.[235] To use the words of C. Judson Herrick, 'mind' and 'body' 'form an organic unity'.[236] The elementalistic attitude, therefore, of splitting VERBALLY 'mind' AND 'body' does not correspondent to reality, according to the best information available today.

In connection with the 'body-mind' problem, we need to mention the 'plus' feeling, which, as Korzybski points out, represents 'an ingrained psychological tendency' built up by primitive mythology. Thus we have such expressions as ' "body" PLUS "mind" '; 'man "is" an animal PLUS "reason" '; etc. Korzybski emphasizes the fact that the organism is not a mere algebraic SUM of its parts, but can only be represented by a 'non-linear' mathematical equation of 'higher degree'. Herein lies the advantage of the language of 'abstractions of different orders', which is NON-ELEMENTALISTIC, since it does not discriminate between 'body' and 'mind'.[237]

Korzybski points out a solution of the hitherto baffling 'body-mind' problem in the COLLOIDAL structure of life.[238] He explains how the bridge between the 'physical' and the 'mental' is to be found in the colloidal processes, where 'the mutual link seems mainly electricity'.[239] In fact:

'As all life is found in the colloidal form and has many characteristics found also in inorganic colloids, it appears that colloids supply us with the most important known link between the inorganic and the organic.'[240]

Korzybski emphasizes that 'by structural necessity, every expression of cellular activity involves some sort of colloidal behavior'; that is, any factor which affects the colloidal structure must affect the organism as-a-whole, and vice versa.[241]

Finally, to quote Korzybski again:

'Let me emphasize once more that from the colloidal point of view free from identification, the "body-mind" problem ceases to be a puzzle, as we have a well established electro-dynamic, structural colloidal background which can account perfectly for the experimental facts of "mind".'[242]

D. DETERMINISM AND INDETERMINISM

The problem of 'Determinism and Indeterminism' has been one of the most interesting problems in the history of philosophy, and the arguments today are as lively as ever.[243] In this section, we will outline briefly Korzybski's approach to this problem, again on the basis of our 'consciousness of abstracting'.

First of all, we must note that what APPEARS TO US as a 'chance' event may very well be a 'law' on the objective levels.[244]

'An event that appears, from our human, limited, anthropomorphic point of view as "rare", or as "chance", when transposed from the level of finite processes, arrays, etc., to that of infinite processes, arrays, etc. is as "regular", as much a "law", involving "order", as anything else.'[245]

Korzybski emphasizes that, 'For scientific purposes, we must accept INFINITE-VALUED DETERMINISM on the SCIENTIFIC LEVEL as IT IS THE TEST FOR STRUCTURE'.[246] This, however, is totally different from the apparent, mostly two-valued indeterminism in daily life. We must not forget that we lack knowledge; many of our 'unknowns' still remain undetermined. It is this impossibility (at present) to discover values in all cases that gives us the appearance of two-valued indeterminism.[247] It is imperative to understand that 'science employs determinism because of the structure and function of our nervous system'. We must preserve INFINITE-VALUED DETERMINISM and step by step supply the missing links in our structural data, at the same time adjusting our language to the new empirical discoveries about the world and our nervous system. 'Such determinism is a vital condition in the search for structure, and cannot be abandoned.'[248]

Determinism, therefore, appears as a more fundamental and more general point of view; whereas indeterminism appears only as 'a particular case and does not allow of the structural test'.[249] In other words, in a non-aristotelian, infinite-valued, more general system, the two-, and three-valued aspects are only particular cases, which apply to some instances and not to others.[250]

At this point, it will be interesting to recall some of the conclusions reached by H. G. Wells a few years ago (although the details of course differ from our standpoint):

'The personal life is not a freedom, though it seems to us to be a freedom; it is a small subjective pattern of freedom in an unchanging all. There is no conflict between fate and free will; they are MAJOR and MINOR aspects of existence. The major aspect of life is Destiny; the minor is that we do not know our destiny.'[251]

Mr. Wells's 'major' and 'minor' aspects of existence may well be compared to our sub-microscopic and macroscopic levels, respectively.

The problems of determinism and indeterminism affect, to a large extent, our behavior and theories. It is well-known today, for instance, that the newer quantum mechanics has proved the inadequacy of the two- or few-valued determinism of the nineteenth century science (which was based on the two-valued aristotelian 'logic' of 'cause' and 'effect').[252] This was interpreted by all those whose standards of evaluation depended on the two-valued 'logic' as representing a 'proof for the existence of free will'[253] (another example of the mechanism of projection); that is, 'EITHER (two-valued) determinism, OR indeterminism'. This apparently baffling and disturbing situation was due, according to Korzybski, to the lack of the formulation of INFINITE-VALUED SEMANTICS (of maximum probability) necessary for infinite-valued determinism.[254]

In the past, 'moralists' have fought determinism on the ground that it leads to licence and chaos, whereas, as Korzybski points out, determinism implies quite the opposite.[255] Here again our knowledge from psychiatry becomes useful. It appears that the prevailing attitude of our 'moralists' reflects infantile characteristics of self-love and self-importance. Illustrating from the history of science the passage from the infantile, self-centered stage to the adult stage of our civilization, Korzybski shows how Copernicus 'shocked' the people of his day by demonstrating that the earth is not 'THE center of THE universe'. Again, Darwin shattered the notion of a 'special creation'; while Freud developed the notion that 'even in semantic processes, determinism prevails'.[256]

The question now arises — what are the 'moral' and 'ethical' consequences of the adoption of infinite-valued determinism in our semantic reactions? We must not forget that in the past we attempted to analyze an individual in a non-existent, fictitious ISOLATION, and the application of TWO-VALUED determinism led to baffling problems and speculations, like 'non-responsibility', etc.[257] However, as Korzybski points out:

'If parents and society accept infinite-valued determinism, they realize their own RESPONSIBILITIES toward the individual, and understand that the actions of parents, society, etc., are, to a large extent, responsible for the future development of the child on quite deterministic psychophysiological grounds.'[258]

Instead of a craze for 'justice', 'punishment of evil', 'revenge', etc., we should rather try to improve conditions of living and proper education, 'so that a new-born individual would not be handicapped from the day of his birth'.[259]

To conclude this short discussion on the problem of (two-valued) determinism against indeterminism, we repeat that 'we have to accept infinite-valued determinism, which (today) becomes the broad scientific point of view'.[260]

E. EPISTEMOLOGICAL PROBLEMS — THE SOURCE OF KNOWLEDGE

EPISTEMOLOGY, or the 'theory of knowledge', raises two important problems: the problem of the SOURCE of knowledge and the problem of the NATURE and VALIDITY of knowledge.[261]

The problem of the sources of knowledge introduces to the two important doctrines of RATIONALISM and EMPIRICISM.

The RATIONALISTS (represented by Descartes, Leibniz, Spinoza, Wolff, and others) broadly speaking, start with premises which are taken as 'self-evident', axiomatic, 'intuitively certain', clear and distinct; and then deduce the consequences of these axioms. The source of these first premises is the 'natural light of reason'; and 'our developed knowledge would have the validity characteristic of strict logical deduction'.[262] Mathematics is considered as an ideal example of this type.[263] The rationalists, therefore, claim that their knowledge depends upon 'truths revealed by the reason, independently of experience, to carry one beyond the sphere of experience'.[264]

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The EMPIRICISTS (represented by Locke, Berkeley, Hume, and others) affirm that in EX-PERIENCE 'all knowledge is founded, and from that it ultimately derives itself'.[265] The beginning of all knowledge is 'sensation', 'and all our ideas are ultimately reducible to sensory experience'.[266]

In their extreme forms both of these doctrines are no longer in good repute among epistemologists.

First of all, if we accept the ORGANISM-AS-A-WHOLE generalization which we have repeatedly emphasized in these pages, then we cannot possibly divide 'senses' and 'mind', 'feelings' and 'intellect', etc. 'It is a fallacy of the old schools to divide man into parcels, elements; all human faculties consist of an inter-connected whole.'[267] To use the words of Sir Arthur Eddington:

> 'I do not think that sensation, as we know it, could exist without an activity of mind which concentrates, compares and distinguishes. What we call a sensation can never be purely sensory ... We just cannot help being brainy, and must try to make the best of it.'[263]

And of course we cannot forget Immanuel Kant who believed that for any act of knowledge 'thought' and 'senses' are both required:

> 'Sense material alone is blind and unordered; it is not experience at all in an objective sense. But thought equally is helpless by itself; it is empty, an abstract form which has to have a content before it is objectively valid.'[269]

Moreover, the organism cannot be separated from the environment.[270] As John Dewey has put it:

> 'The interaction of organism and environment, resulting in some adaption which secures utilization of the latter, is the primary fact, the basic category.'[271]

Thus, the elementalistic 'absolute' division between 'observer' and 'observed' is false to facts, since 'every observation in this field disturbs the observed'.[272] The elimination of this elementalism turns out to be of great importance in the study of the epistemological problem under discussion. To quote R. D. Carmichael:

> 'Neither the authority of man alone nor the authority of fact alone is sufficient. The universe, as known to us, is a joint phenomenon of the observer and the observed; and every process of discovery in natural science or in other branches of human knowledge will acquire its best excellence when it is in accordance with this fundamental principle.'[273]

The 'contemplation' of the 'thing in itself' (Locke), or Ding an sich (Kant), tends to isolate the 'object' from the observer (as well as identify it with the event); whereas we know that the 'object' is nothing but 'the statement of a relation between an event and the observer'.[274]

Therefore, each of the two (apparently) opposite, elementalistic doctrines of rationalism and empiricism has attempted to isolate a different part of the nervous system. Whenever the separation has been carried too far, we usually regard that particular 'epistemology' as having been a failure. E. S. Brightman writes: 'A rationalistic philosophy will be doomed in advance to failure, if philosophy be an account of the whole of experience.'[275] To quote A. N. Whitehead: 'A self-satisfied rationalism is in effect a form of anti-rationalism. It means an arbitrary halt at a particular set of abstractions.'[276] On the other hand, as G. Santayana has put it, 'The empiricist. thinks he believes only what he sees, but he is much better at believing than at seeing.'[277]— we must not forget that 'no "facts" are ever free from "doctrines".'[278] Actually, however, the more 'successful' 'rationalists' could not help behaving like 'empiricists', and the 'empiricists' behaving like 'rationalists'.[279]

To conclude, we will quote a passage by F. Paulsen in which he expresses opinions similar to the conclusions we have reached in the present section:

> 'As we know but one reality, so we know but one truth, and one road to truth—rationalizing experience. Thought without experience no more leads to a knowledge of reality than irrational experience. The philosopher has no royal road to knowledge. Pure speculation is in truth nothing but a distorted reflection of

knowledge, and this knowledge is the result of experience, only its possessors will not admit it.'280

F. EPISTEMOLOGICAL PROBLEMS — THE NATURE OF KNOWLEDGE

The second problem of epistemology, in its general form, deals with 'the problem of the relation of our ideas to the world of reality'.281 This problem raises the famous dispute between the traditional theories of REALISM and IDEALISM.

The question concerning the nature of knowledge is answered by the REALISTS in the following manner:

'Knowledge is a copy of reality. The idea is an absolute representation of the object. It is an alterum idem of the thing; only it is without corporeality or reality.'282

IDEALISTS, on the other hand, argue that the world is 'just a reflection of our own minds, an idea, a perception, a mental construction'.283

We will deal with this problem by outlining the mechanism of abstracting as given by Korzybski.

Our nervous system ABSTRACTS from the event; that is, it 'selects', 'summarizes', 'picks out', etc., a finite number of characteristics from the infinite numbers of characteristics of the event.284 This 'first abstraction' constitutes the OBJECT (un-speakable) of our experience. To use Korzybski's own words:

'The above considerations are in perfect accord not only with the functioning of the nervous system but also with its structure. Our nervous system registers objects with its lower centers first, and each of these lower specific abstractions we call an object.'285

A. N. Whitehead defines the object as the RECOGNIZABLE part of the event: 'A character of an event can be recognized ... Things which we thus recognize I call objects.'286

Since our nervous system cannot register absolute differences, similarities appear among different individual objects.287 Through our (human) ability to abstract in higher orders, we create a symbol, a label, a name for the object, and (especially with more 'civilized' peoples) we apply this name to different objects which possess similar characteristics. The label, therefore, represents a still higher abstraction from the event, since we usually specify VERBALLY 'only those characteristics which are of particular immediate interest to us'; thus, its IMPORTANCE 'lies in its MEANINGS to us'.288

Inferences are obviously still higher order abstractions than descriptions; and so on, ad infinitum. Moreover,

'... the lower centers produce the raw material from which the higher abstractions are made, and these higher abstractions again influence the working of the lower centers; (the organism works as-a-whole.)'289

According to Korzybski, 'the highest structural abstractions that have been produced at each date' are represented by the SCIENCE of that date.290 Through our science we learn more and more about the EVENT, which is 'DESCRIBED at each date by very reliable, constantly revised and tested, HYPOTHETICAL, structural, INFERENTIAL terms', thus exhibiting the peculiar 'CIRCULARITY of human knowledge'.291

For Plato, 'the truly real world is the world of "ideas", or "universals" '.292 What were known throughout the history of philosophy as 'universals' may be regarded as 'higher order abstractions'. For us, the 'truly real world' is represented by the sub-microscopic level. To identify 'universals' with 'events', or consider them as more fundamental than 'objects', leads to a confusion and reversal of the natural order of abstracting. We should not wonder, therefore, if such an attitude may, as Bertrand Russell points out, lead into mysticism.293

In general, we may say that in the extreme forms of REALISM the macroscopic level becomes identified with the sub-microscopic level (a condition which Korzybski calls 'ignorance, pathological to MAN'); while IDEALISM, in its extreme forms, represents an identification of

the verbal levels (higher order abstractions) with the objective levels (events and/or objects) — a condition described by Korzybski as 'objectification'.[294]

We have already emphasized a fundamental principle in Korzybski's system; namely, 'a word IS NOT the object it represents.' Therefore, according to Korzybski, 'the only possible link between the objective (un-speakable) and verbal levels' is to be found in STRUCTURE. Moreover, 'the only possible "content of knowledge" becomes exclusively STRUCTURAL'. The only METHOD for acquiring 'knowledge' is found first in 'an EMPIRICAL investigation of the potentially unknown structure of the world, ourselves included', and only afterwards, 'adjusting the structure of languages so that they would be similar, and so of maximum usefulness'. We cannot escape Korzybski's contention that, on the whole, we have been following so far the REVERSED ORDER: namely, that of 'ascribing to the world the structure of an inherited primitive language'.[295]

G. EPISTEMOLOGICAL PROBLEMS — THE VALIDITY OF KNOWLEDGE

In the present section we will take the opportunity of outlining various aspects of the approach taken by general semantics in our study of the validity of knowledge.

1. PROPOSITIONAL FUNCTIONS. First of all, we need to point out the important notion of the 'propositional function', introduced by Bertrand Russell, and which may be roughly defined as:

'... an INFINITE-VALUED STATEMENT, containing one or more variables, such that when single values are assigned to these variables the expression becomes, in principle, a ONE-VALUED PROPOSITION.'[296]

Thus, the propositional function 'x is human' represents a statement which is neither 'true' nor 'false', but ambiguous, until we assign a definite, single value to the variable 'x'.[297]

The question now arises, are the terms with which we deal in our daily language one-valued? Korzybski answers:

'We see that a large majority of the terms we use are names for infinite-valued stages of processes with a CHANGING CONTENT. When such terms are used, they generally carry different or many contents. The terms represent infinite-valued variables, and so the statements represent infinite-valued propositional functions, not one-valued propositions, and, therefore, in principle, are neither true nor false, but ambiguous.'[298]

2. MULTIORDINAL TERMS. At this point we discover the importance of the theory of the MULTIORDINALITY of the most important terms we use, formulated by Korzybski in 1925. Such terms as 'yes', 'no', 'true', 'false', 'function', 'property', 'relation', 'number', 'difference', 'name', 'definition', 'fact', 'reality', 'problem', 'to know', 'to hate', 'to love', 'to doubt', 'cause', 'effect', 'meaning', and an endless array of the most important terms we use, Korzybski considers as MULTIORDINAL TERMS. Their most important semantic characteristic is that 'on different levels of orders of abstractions they may have different meanings', with the result that 'they are ambiguous, or infinite-valued, in general, and that each has a definite meaning, or one value, only and exclusively in a given context, when the order of abstraction can be definitely indicated'.[299] If these terms can be applied to a statement, 'they can also be applied to a statement about the first statement, and so on, ultimately, to all statements, no matter what their order of abstraction is'.[300]

Once we realize that multiordinal terms, IN GENERAL, are ambiguous, all arguments about them, 'in general', are bound to lead to identification and confusion of orders of abstractions. With the training in the CONSCIOUSNESS OF ABSTRACTING,[301] all semantic problems involved can be settled very simply.[302]

3. THE GENERAL PRINCIPLE OF UNCERTAINTY. Korzybski writes that 'the laws of nature appear to be such that the actual state of the world is represented by that which is statistically the most probable'. This appears to be of great semantic important for us; since we are all the time abstracting in different orders, the only language in which we can speak adequately is 'the language of probabilities, statistical averages, etc.'[303]

We have already noted that on the objective, un-speakable levels we deal exclusively with absolute (non-identical) individuals and individual situations. All statements, therefore, which

necessarily represent higher abstractions, 'must only represent PROBABLE statements'. Thus, according to Korzybski:

'...we are led to infinite-valued semantics of probability, which introduces an inherent and general principle of uncertainty in all statements.'[304]

4. THE NEUROLOGY OF FALSEHOOD. Since the main usefulness of Korzybski's theory of sanity is 'to help in attaining the most efficient working of the nervous system by the elimination of disturbing semantic factors, "attitudes", "doctrines", etc., one of our tasks is to investigate the effect that false (or repressed) statements may have on the functioning of our nervous system.

When we SEE, for instance, that A, B, and C, are given in the order A, B, C, such lower abstractions 'start cycles of nervous currents' correspondent to the SEEN order. However,

'... if we SEE the order A, B, C, and SAY UNTRUTHFULLY that the order appears as C, B, A, this STATEMENT results, also, from some cyclic nerve currents. Obviously, we have SOME CONFLICT AND DISTURBANCE IN THE WORKING OF THE SYSTEM.'

On the other hand, if we make a MISTAKE, the situation differs. Assuming that many observers have definitely established the given order as A, B, C, and an observer SEES BY MISTAKE the order as C, B, A, then:

'... his nervous currents correspond to his error, and when he makes a TRUTHFUL STATEMENT that he has seen C, B, A, this statement also is connected with the appropriate nerve currents and there is NO CONFLICT or disturbance between the corresponding nerve currents. The seen and reported correspond to each other.'[305]

Errors and deliberate falsehoods, therefore, have a different mechanism.

' A mistake, which leads to a subjectively true but objectively false statement, has no nervously disturbing factors. Deliberate false statements about facts involve semantic conflicts and disturbances to the functioning of the nervous system.'[306]

Therefore, we must remember that an attitude BASED ON FALSEHOODS AND REPRESSION OF TRUTH, in politics, economics, and human affairs in general must, necessarily, 'unbalance the working of the nervous systems of the people'.[307]

H. CONCLUSION

It has been our purpose in the present chapter to point out a few methods by which one may handle the various philosophical themes on the basis of general semantics. It was by no means our intention to be exhaustive in our treatment of the subject. In fact, we have left out altogether the consideration of the religious, moral, and aesthetic values, as it would be impossible to do justice to these in a paper of the present size.

Here we merely need to point out Korzybski's attitude toward 'philosophical problems' in general, and the importance he attaches to the role of psychiatry. In SCIENCE AND SANITY he writes:

'From the non-elementalistic, structural, and semantic point of view, the problems with which the older "metaphysics" and "philosophy" dealt, should be divided into two quite definite groups. One would include "epistemology", or the theory of knowledge, which would ultimately merge with scientific and non-elementalistics psycho-logics, based on general semantics, structure, relations, multi-dimensional order, AND the quantum mechanics of a given date; AND THE REST WOULD REPRESENT SEMANTIC DISTURBANCES, TO BE STUDIED BY A GENERALIZED UP-TO-DATE PSYCHIATRY.'[308]

This statement appears to be of the greatest importance, although it may be considered as 'blasphemous' by some.

Korzybski emphasizes the fact that the work of all of us (philosophers included) is THE

PRODUCT OF THE FUNCTIONING OF OUR OWN NERVOUS SYSTEMS.[309] For sanity and survival, we must learn how to use our nervous system most efficiently. If we misuse our nervous systems, then all kinds of identifications, tragedies, etc. occur. Korzybski maintains that ' "philosophers" and reasoners of that class have had a predilection for intension... (which was) already based on the reversal of the survival order'.[310] However, he excludes from this 'class of reasoners' the 'epistemologists' who are 'really doing important work'.[311]

To conclude, therefore, we can say that, from the point of view of GENERAL SEMANTICS, 'as material for psychiatrical studies', the 'philosophical themes' 'may be scientifically considered, to the great benefit of our understanding'.[312]

Having considered some of the problems that have occupied thinkers throughout the history of philosophy, we will now take up a problem that has assumed some prominence in our day — namely, the problem of science and philosophy.

Chapter V. SCIENCE AND PHILOSOPHY

A. INTRODUCTORY

TODAY, in the middle of the twentieth century, with the rapid advances made in the technological-scientific field, it appears to the common man that philosophy is gradually losing ground.

'Once she was the proud mistress of all the intellectual globe, and counted the loftiest among her happy servitors; now, despoiled of her beauty and her power, she stands by the wayside desolate, and none so poor to do her reverence.'[313]

Moreover, when the traditional 'philosophical themes' are being subjected to such severe criticism by the scientists of our day (as we have attempted to show in the two preceding chapters), a great number of questions inevitably arise. Can philosophy meet the challenge of science? Is philosophy altogether different or separate from science? Can philosophy solve the problems of today? What is the present position of philosophy with regard to the sciences?

In the present chapter, we will attempt to outline briefly the historical and functional interrelation (and interdependence) between the two fields, as well as note their position with regard to general semantics.

B. HISTORICAL CONNECTION

Attacks and severe criticisms on the part of scientists against philosophers have become frequent. Korzybski, for instance, writes, 'The "philosophers", in the main, have a record of failure.'[314]

This tendency on the part of scientists to look with disfavor on philosophy does not, to a large extent, appear justified, considering the close connection between the problems of science and the problems of philosophy throughout history.[315] It represents an attitude which, to adapt an expression by John Dewey, may well be considered 'a survival of an age which had not the historical point of view'.[316]

The history of philosophy, writes A. N. Whitehead, 'runs curiously parallel to that of science'.[317] With Thales and his successors of the early Ionian school one can hardly draw a distinction between the two fields.[318] Moreover, such names as those of Heracleitus, Democritus, Socrates, Plato, Aristotle, Lucretius, Francis Bacon, Descartes, Leibniz, Whitehead, Russell, and many others, are to be encountered both in the history of science and in the history of philosophy. For example, the general trend of the development of modern philosophy was settled, according to Whitehead, during the seventeenth century, 'partly at the hands of the same men who established the scientific principles.'[319]

The greater periods of philosophy have had their roots in the discoveries of science about the nature of the world;[320] and the basic notions of each science 'are a specialization from the philosophic intuitions which form the background of the civilized thought of the epoch in question'.[321] In short, the general developments of science and philosophy 'have been so closely intertwined' that, according to A. K. Rogers, 'neither can be really understood without the other'.[322]

C. COMMON CHARACTERISTICS

Philosophy, Pringle-Pattison remarks, is not dealing with 'a subject-matter different from, and in some obscure way transcending, the subject-matter of the sciences'.[323]

To quote A. N. Whitehead:

'In one sense, Science and Philosophy are merely different aspects of one great enterprise of the human mind. ...
'They are both concerned with the understanding of individual facts as illustrations of general principles. The principles are understood in the abstract, and the facts are understood in respect to their embodiment of the principles. ...
'(They are both urged by) the craving of reason that the facts discriminated in experience be understood.'[324]

Both science and philosophy are alike in that 'each, animated by an impartial love of truth, seeks to understand experience intellectually'.[325] They possess 'the same spirit and the same purpose — the honest and laborious search for truth'.[326] Both science and philosophy are inspired by an intellectual curiosity, 'a desire to know for the sake of knowing'.[327]

The starting point common to the sciences and philosophy is, according to F. Paulsen, 'the rational conception of reality'.[328] And the first step is made in both fields when, according to Whitehead, it is discovered that every occurrence is an exemplification of some principle which can be stated in abstraction from the particular occurrences.[329]

D. APPARENT DIFFERENCES

It is frequently stated that with Plato science and philosophy almost parted company and each followed a different path.[330] However, the important division of territory between the two fields seems to have occurred with Descartes, at the close of the seventeenth century.[331]

In recent years numerous viewpoints have been formulated to explain the apparent opposition between the two fields.[332] For our purpose, we will quote A. N. Whitehead as to the functions generally attributed to science:

'The emphasis of science is upon observation of particular occurrences, and upon inductive generalizations, issuing to their modes of functioning, in other words according to the laws of nature which they illustrate.'[333]

Mortimer J. Adler describes science as the 'second order of facts'; namely, the propositions expressed by the statements made about actuality (first order of facts).[334] Using the terminology of general semantics (in this particular case only), this would be the 'descriptive' level.[335]

As for the functions attributed to philosophy, to quote Whitehead again: 'The emphasis of philosophy is upon generalizations which almost fail to classify by reason of their universal application.'[336] Mortimer Adler describes philosophy as the 'third order of facts', which is 'the class of entities which are statements about the second order of facts, that is, statements about statements'.[337] We could also describe it as the 'inferential' level.[335]

E. INTERRELATION

We have seen that the organism functions as-a-whole. It is, therefore, impossible to separate entirely, different levels of abstractions.[338] Consequently, if we are to represent science and philosophy by the 'descriptive' and 'inferential' levels respectively, we are led to believe that the field of science cannot be entirely separated from the field of philosophy, both being products of the human nervous system.

In fact, the above distinction made between the two fields (on the basis of the distinction made between 'descriptive' and 'inferential' levels) is too clear cut to represent the situation adequately.[339] The interrelation, interdependence, overlapping, etc. between the two fields has been pointed out from various quarters. Henri Poincare, for instance, writes:

'It is often said experiments must be made without a preconceived idea. That is impossible. Not only would it make all experiment barren, but that would be attempted which could not be done. Everyone carries in his mind his own conception of the world, of which he can not so easily rid himself.'[340]

Experiments are made 'under conditions that involve certain presuppositions'.[341] 'No "facts" are ever free from "doctrines".'[342] To use the words of Josiah Royce: 'We report facts; we let the facts speak; but we, as we investigate, in the popular phrase, "talk back" to the facts. We interpret as well as report.'[343] In science 'speculation' is not excluded. While the scientist collects and describes facts at first, he must interpret them afterward, often employing 'conceptual tools' shaped by past philosophies, and in a manner not unlike the philosopher's.[344] As Korzybski has put it:

'Although a sub-atomic physicist utilizes "senses" to observe his instruments, yet his CAUSAL STRUCTURAL UNITS are no longer "sense" units but INFERENTIAL

UNITS, which appear to be more reliable and fundamental than any lower order symbols such as "sense perceptions" can possibly give us, and which in fact our "senses" cannot even register.'[345]

Roughly speaking, the scientist attempts to formulate 'the actual laws which explain the facts and sequences in the world'; he becomes a philosopher 'as soon as he undertakes to lay down general propositions about the ultimate nature of the world, in essence and in the large'.[346]

Thus, the relation between philosophy and the sciences, according to Pringle-Pattison, appears, to some extent, to be one of reciprocal influence:

'The sciences may be said to furnish philosophy with its matter, but philosophical criticism reacts upon the matter thus furnished, and transforms it. ... Such transformation is inevitable, for the parts only exist and can only be fully, i.e. truly, known in their relation to the whole.'[347]

Philosophic systems 'give life and motion to detached thoughts'.[348]

To summarize this section, we will quote a significant passage by Velorus Martz:

'The solution of Life's problems requires both a philosophy and a science. When two factors of a situation are essential, one cannot be said to be more important than the other. The scientist and the philosopher play complementary roles in the great drama of life. Neither should attempt to "steal the show". Mankind will be best served while the philosopher remembers that facts are not established by dialectic and the scientist does not forget that the ultimate purposes of life are not a matter for objective determination.'[349]

F. CONCLUSION — SCIENCE, PHILOSOPHY, AND GENERAL SEMANTICS

In the foregoing pages, we have attempted to demonstrate the interrelation and interdependence between science and philosophy. We cannot, however, ignore the tendency of our epoch.

Such far-reaching developments have been accomplished during the past one hundred years by those whom we label 'scientists' that it must seem as if they have extended their fields of interest well into the field traditionally ascribed to the philosophers, ignoring the existence of any boundary line that may have been set up in the past. In fact today we find that:

'... physicists like Eddington, and Einstein, and Whitehead, and physiologists like Driesch, and Haldane, and Henderson, and pure mathematicians like Brouwer, and Hilbert, and Weyl, are writing philosophy.'[350]

Their work has assumed such importance and magnitude, and we find them handling the traditional 'philosophical themes' with such skill and dexterity and new vision that, to adapt the words of Herbert Feigl, 'it must seem as if (they) have left the philosophers without a job'.[351]

And that is not all. Not only do we find scientists today intruding into the sphere of philosophy, but some of them are actually ignoring the Queen of the Sciences altogether. Korzybski, for instance, writes:

'Science represents the highest structural abstractions that have been produced at each date. It is a supreme abstraction from all the experiences of countless individuals and generations.'[352]

Korzybski thus clearly ascribes to science what has been traditionally ascribed to philosophy.

But has philosophy been altogether innocent of the charges brought against her? Korzybski specifically criticizes the philosophers as having had a 'predilection for intension', based on the reversal of the natural survival order of evaluation, which, according to him:

'... explains why, in spite of tremendously acute verbal exercises, they have not produced anything of lasting value, for they were carried away by the structure of the language they used.'[353]

Korzybski goes so far as to include persistently the terms 'philosophy', 'philosophers', etc. in quotation marks — just to serve as a warning against the use of their methods.

What is the moral of the tale? What will the remedy be for the crisis which we mentioned in Chapter I? Philosophy or science? According to some, 'the remedy is more and better philosophy';[354] while others earnestly believe that 'the urgent need of the present is ... to extend the field of science further into that now taken by philosophy'.[355]

For our purposes it is immaterial whether those who are to help us out of our present impasse are labelled 'scientists' or 'philosophers'. However, we trust it has become clear from our discussion in the preceding chapters that whoever attempts to 'describe the universe and man's place in it' can no longer afford to remain ignorant of the empirical facts about the world and man discovered at each date. And who are more competent than the scientists in this respect? Yet even scientists can do little in trying to solve our problems as long as they fail to understand the interrelation between science and human affairs; so long as they work under scientific standards of evaluation in their laboratories, while employing semi-scientific and pre-scientific evaluations in their daily language, private lives, and social institutions; so long as they are not in possession of a GENERAL system, a 'science of man' on which to base their task of reconstruction.

And this is precisely what Korzybski has worked out and offered.

In the next chapter we will outline briefly the importance of Korzybski's formulation of the Science of Man and the implications of his non-aristotelian revision.

PART THREE

CONCLUSION

Chapter VI. NON-ARISTOTELIAN ORIENTATIONS

IN THE PREFACE to this paper we announced our intention to discuss certain orientations inherent in traditional philosophies as well as a few philosophical themes on the basis of General Semantics as formulated by Alfred Korzybski. While a considerable part of Chapters III and IV has been 'destructive' in character, we have not omitted to point out a few of the corresponding 'constructive' elements in Korzybski's system on the basis of our outline of General Semantics given in Chapter II. Here it will be profitable to mention a few general consequences and developments arising from a non-aristotelian revision.

Non-aristotelian attempts are being made continually in limited areas. The main problem today is 'to formulate GENERAL METHODS by which these many separate attempts can be unified into a general system of evaluation'. Such a non-aristotelian formulation has been attempted by Korzybski in SCIENCE AND SANITY.[356] It represents the basis for a 'Science of Man'.

All our science is, in the rough, 'developing in the non-aristotelian direction'. Our language and human relations, however, are still, to a large extent, based on the aristotelian system. If we are to have a science of man we must abandon the structural implications of our old language and the corresponding semantic reactions, and build up a new terminology of a non-aristotelian character, as well as train our semantic reactions accordingly. At the same time, science itself will progress more rapidly, to our own benefit.[357]

A non-aristotelian revision makes certain isolated discoveries generally applicable for our daily lives. Moreover, they become available in our elementary education, 'which alone can be generally effective'.[358]

The prevailing and increasing deterioration of human values is, according to Korzybski, 'an unavoidable consequence of the crippling misuse of NEURO-linguistic and NEURO-semantic mechanisms'. Since in general semantics we are concerned with the SANITY of the race, special methods are devised for PREVENTIVE purposes. Individuals are trained in the 'consciusness of abstracting' and the realization that structure becomes the only possible content of knowledge. Aristotelian types of evaluation, which according to Korzybski often lead to the UN-SANITY of the race, are thus eliminated. In general semantics, Korzybski 'builds up for the first time a positive theory of sanity, as a workable non-aristotelian system'.[359]

The essence of Korzybski's theory of sanity lies in the CONSCIOUSNESS OF ABSTRACTING. Training in the differentiation of different levels of abstractions eliminates identification and the unconscious copying of animals in our nervous responses.[360]

In connection with the mechanism of abstracting we discover the neuro-logical importance of MATHEMATICS.

'As the organism works as-a-whole, for its optimum working, and, therefore, for sanity, we need a language, a method, which may be translated into a semantic reaction by which to translate the dynamic into the static, and vice versa.'[361]

The methods of translating the dynamic into the static, and vice versa, are supplied EXCLUSIVELY by mathematics, in the differential calculus and four-dimensional geometries.[362] ' "Psychologists" miss a great deal,' writes Korzybski, 'by disregarding this important and unique form of human behavior which we call mathematizing.'[363] Incidentally, this throws new light on the problem of 'permanence and change' which began with Heracleitus.[364] 'Change' is represented by the ever-changing process, or event, and 'permanence' by the higher order abstractions (laws, terms, etc.); and the method of translating one into the other is to be found in mathematics.

We have already noted that the NON-ELEMENTALISTIC principle formulates a structural character inherently found in the world and our nervous system. Its application 'is unconditionally necessary for adjustment on all levels, and, therefore, in humans, for SANITY'.[365] We are trained to translate 'emotions' into 'ideas', and 'ideas' into 'emotions', with EQUAL FACILITY.[366] Thus, the non-elementalistic principle, in its application, trains us in the integration of the personality,

instead of the old elementalistic notions which tended to split a person into elements, like 'body', 'mind', 'spirit', 'soul', etc.

The elimination of identification, the consciousness of abstracting, the fundamental negative premises, the theory of multiordinality, all lead to a theory of UNIVERSAL AGREEMENT, in the broadest sense.

> 'Agreement with one's self, eliminating internal "conflict", and with others, eliminating family, social, and international conflicts, etc., is neuro-logically not only possible, but also a necessary semantic consequence of using the human nervous system in its structurally appropriate way.'[367]

This factor is of maximum importance.

Structure, relations, and multi-dimensional order supply us with a language which completely bridges daily-life experiences with all sciences. Moreover, in the place of the old elementalistic two-valued 'logics', expressed in terms of 'true', 'false', and modality, Korzybski introduces investigations of one-, two-, three-, and infinite-valued SEMANTIC REACTIONS, 'which become a GENERAL THEORY OF VALUES, and which may some day include all human activities,'[368] (including ethics, economics, etc.).

Perhaps the most remarkable feature of general semantics lies in its EXPERIMENTAL value. The results achieved in the field of 'mental' health as well as in general education have widened horizons and offer 'unlimited possibilities for personal and public adjustment', as is demonstrated by numerous experiments carried out by psychiatrists and educators and recorded in the proceedings of the first two American Congresses on General Semantics.[369]

Finally, we must note, in comparing the non-aristotelian with the aristotelian system, that, at different epochs, other postulates seem 'structurally closer to our experience' and 'more expedient'. If we preserve such an attitude, then, Korzybski points out, we will 'not retard so greatly the appearance of new systems which will supersede the present non-aristotelian system'.[370]

Chapter VII. CONCLUDING REMARKS

WHILE these lines are written, the second World War is drawing to an end in Europe. Whether the great struggle has solved any of our problems or not, it has certainly created new ones. On our ability to handle these problems adequately will depend the future peace of the world. If they are not met with successfully, then nothing but catastrophe can be expected.

The gravity of the present state of our affairs has been stressed from every quarter. G. T. W. Patrick, for instance, wrote a few years ago:

> 'Unless we can get some of our moral, social, and economic problems solved, there is grave danger of a rapid decline of our standard of living, if not of social degeneration.'[371]

Whether such a disaster will take place, the future will tell. Yet, for Korzybski, 'one fact remains a certainty; namely, that this will depend on whether or not SCIENCE can take hold of human affairs'.[372]

The rising role of science has been recognized by numerous writers. To quote Patrick again:

> 'Our social, economic, moral, philosophical and religious problems must now receive more of the attention of science, and the tremendous intellectual power exhibited in scientific thought and research must be turned more into these other directions.'[373]

And later he adds:

> 'Concretely, I should say that the urgent need of the present is to widen the scope of the natural sciences to take in all the subjects of human interests.'[374]

This need was recognized by Korzybski, and with the formulation of the Science of Man he has offered the means by which modern scientific standards of evaluation can be applied to human affairs. This would imply that all our activities must be based on similar standards of evaluation. To use Korzybski's own words:

> 'A non-aristotelian civilization will require a unification of all existing human disciplines on the base of exact sciences. This unification will require all scientists, mathematicians, physicists, and psychiatrists included, to become acquainted and fully to practice non-aristotelian standards of evaluation. A non-aristotelian revision would have an international and an interracial application, requiring a very thorough revision of all doctrines, a better acquaintance of specialists in one field with the accomplishments in other fields, and an UP-TO-DATE EPISTEMOLOGY.'[375]

Among the numerous features of a non-aristotelian civilization that we can foresee is the enhancement of our time-binding capacity. In order to profit by our time-binding capacity to the maximum, every individual would share in the activities of his fellow men. To use the words of S. I. Hayakawa:

> 'In such a world no human group would be completely isolated from the products of the time-binding energies of the rest of the human race; and no group would be unable to contribute, in whatever small way, to the great human store of knowledge and experience which lies at the disposal of all.'[376]

Thus, democracy acquires a deeper meaning. To quote Hayakawa again:

> 'Democracy, thoroughly developed and energetically carried forward in the main areas of human life, would be a form of social organization entirely consonant with the fullest realization of man's time-binding energies.'[377]

Education represents the means by which the experiences of different individuals and generations can be stored and transmitted. Korzybski notes that:

> '... from the NON-ELEMENTALISTIC point of view, (we must) ... realize that ignorance in an adult is, and must be, pathological, because "knowledge" is to be considered as a normal characteristic of human NERVOUS TISSUE.'

Education thus becomes a 'biological necessity'.378 Hence the all-important role which educators play in our civilization. Korzybski has demonstrated that the existing systems of education often train the young toward un-sanity. Only a non-aristotelian revision, based on Korzybski's theory of sanity, can retrain our semantic reactions toward sanity, survival, and progress. To use the words of Hayakawa: 'He who studies, teaches, and applies general semantics, then, ... is helping to make possible the conditions under which not democracy alone, but civilization, can survive.'379

Cassius J. Keyser writes of the work of Korzybski:

'I feel bound to say that this work, taken as a whole, is beyond all comparison
the most momentous single contribution that has ever been made to our knowledge
and understanding of what is essential and distinctive in the nature of Man.'380

Weak points and inconsistencies may be discovered in Korzybski's system as it is put into practice by more people in the future. Yet no one today — whether philosopher or educator, whether mathematician or psychiatrist, whether priest or statesman — can escape the scientific and epistemological issues raised by General Semantics. Its simple, yet powerful, foundations remain undeniable for the present. That it will meet opposition for its 'revolutionary' character must be expected. The history of science is before our eyes. Yet the system appears to be the best guide we have for the future progress of our civilization, itself allowing for the maximum flexibility and breadth of vision. Personally, we regard General Semantics as a system with a missionary character. We can only get a glimpse of the day when Korzybski's message will be carried to all the peoples of the earth. The great question, the question which Korzybski himself asks, is when, and at what cost.

And finally, before bringing this tale to an end, we wish to point out that the greatest value which we have found in the present study is a greater appreciation of the work of the philosophers of the past. We have learned to judge every philosopher according to his own age.

Too many in our day scorn and ridicule the men of the past and their work. To follow, today, the life and teachings of those who lived in A. D. 1500 or 500 B. C., in all their respects, would undoubtedly represent a sign of regression. Yet to condemn their product for the simple reason that it is out of conjunction with present day knowledge and life is indeed to lack a sense of proportion.

Korzybski writes that 'the "philosophers", in the main, have a record of failure'. We cannot carry this epigram too far. There is no doubt that, as we know now, the work of some thinkers was not in the direction of what we now consider to be proper for our survival. Yet we study what we call their successes and what we call their failures and we profit from both.

When criticizing the thinkers of the past, let us stop and think for a moment of the men and women of 2045 and 2145 A. D., and of all our future generations, for whose benefit and happiness and survival we work and must not falter, and let us ask ourselves, how far have we recognized our debt to the past, to the generations that came before us, to those who have made our work possible, that our descendants may feel the same toward us?

We cannot but express our gratitude to those who went before us that we may be worthy of the gratitude of those who come after us.

FOOTNOTES

1 John Dewey, RECONSTRUCTION IN PHI-
LOSOPHY, p 1 See below II, III

2 A.S. Pringle-Pattison, 'Philosophy and
Philosophical Studies', ENCYCLOPAEDIA
BRITANNICA (14th ed) vol 17, p 760a

3 F. Paulsen, INTRODUCTION TO PHILOS-
OPHY, p 2

4 Sir James Jeans, THE NEW BACKGROUND
OF SCIENCE, p 50, quoted by G.T.W. Pat-
rick, INTRODUCTION TO PHILOSOPHY,
p 53

5 G.T.W. Patrick, op cit, p 3

6 ibid, pp 3ff

7 J.E. Erdmann, A HISTORY OF PHILOS-
OPHY, vol I, p 1

8 F. Paulsen, loc cit

9 A.S. Pringle-Pattison, op cit p759

10 ibid

11 ibid p 759b

12 G.T.W. Patrick, op cit p 24

13 A.S. Pringle-Pattison, op cit p760

14 W. Wundt, SYSTEM DER PHILOSOPHIE
(1889), p 21; quoted by F. Paulsen, op cit
p 37

15 D. Drake, INVITATION TO PHILOSOPHY,
qu by Patrick, p 23

16 A.S. Pringle-Pattison, op cit p 759

17 E.S. Brightman, AN INTRODUCTION TO
PHILOSOPHY, p 4

18 G.T.W. Patrick, op cit, p 5

19 E.S. Brightman, op cit, p 10

20 A.S. Pringle-Pattison, op cit, p759

21 G.T.W. Patrick, op cit, p 21

22 ibid, p 12

23 E.S. Brightman, op cit, p 21

24 J.S. Mackenzie, ELEMENTS OF CON-
STRUCTIVE PHILOSOPHY, p 15

25 ibid, p 16

26 ibid

27 R.B. Perry, THE APPROACH TO PHIL-
OSOPHY, Ch II, qu by Patrick pp 13f

28 G.T.W. Patrick, op cit, pp 35f; for the re-
lations between science and philosophy see
Ch V.

29 J.E. Erdmann, op cit, vol I, p 1; cf E.A.
Burtt, THE METAPHYSICAL FOUNDA-
TIONS OF PHYSICAL SCIENCE p 1

30 Oswald Spengler, THE DECLINE OF THE
WEST, vol I, p 41

31 John Dewey, PHILOSOPHY AND CIVILI-
ZATION, in INTELLIGENCE IN THE
MODERN WORLD: JOHN DEWEY'S PHIL-
OSOPHY, ed by Ratner, p 246

32 J.E. Erdmann, op cit, vol I, p 3

33 John Dewey, PHILOSOPHY AND CIVILI-
ZATION, in Ratner, op cit, p 250

34 Oswald Spengler, loc cit

35 F.S.C. Northrop, SCIENCE AND FIRST
PRINCIPLES, p 2, qu by Patrick, op cit,
p 8.

36 Jos Brewer, 'Education in the Modern World,'
in A. Korzybski et al, GENERAL SEMAN-
TICS, p 54

37 Max Planck, WHERE IS SCIENCE GOING?
p 64, qu by Patrick, p 8

38 John Dewey, 'Philosophy,' in WHITHER MAN-
KIND, ed by Beard, p 331

39 O.L. Reiser, 'Historical-Cultural Significance
of Non-Aristotelian Movement and the
Methodological Contributions of Korzybski, in
PAPERS FROM THE SECOND AMERICAN
CONGRESS ON GENERAL SEMANTICS, ed
by M. Kendig, p 3

40 Korzybski has selected the term 'Aristotelian'
to stand for the body of doctrines known as
'aristotelianism'. These doctrines are as-
cribed to the 'aristotelian' tradition of the
followers of Aristotle, and not necessarily to
Aristotle himself. 'Aristoteliansim' accord-
ing to Korzybski, has had 'an unprecedented
influence upon the development of the Aryan
race, and so the study of aristotelianism may
help us to understand ourselves.' — SCIENCE
AND SANITY: AN INTRODUCTION TO NON-
ARISTOTELIAN SYSTEMS AND GENERAL
SEMANTICS (1933, 1941), pp 86f (This vol-
ume will henceforth be referred to as S&S.)
For criticism of the term 'aristotelian,' see
C.J. Keyser, 'mathematics and the Science of
Semantics,' SCRIPTA MATHEMATICA, vol II
no 3 (1934) pp 253ff; E.T. Bell, review of S&S
in AMERICAN MATHEMATICAL MONTHLY,
vol XLI no 9 (Nov 1934), p 571

41 S&S pp 194, 197, 400

42 S&S pp 197ff

43 Alfred Korzybski, MANHOOD OF HUMAN-
ITY: THE SCIENCE AND ART OF HUMAN
ENGINEERING (1921), p 28, qu by Reiser
op cit, p 6

44 S&S pp 48, 376

45 S&S, Part I; see also Reiser, loc cit; C.J.
Keyser, op cit, p 252

46 C.J. Keyser, op cit, p 247

47 S&S pp 7, 538f

48 S&S pp 7, 39, 376

49 C.J. Keyser, op cit, p 248

50 S&S p 539

51 S&S pp 10, 70f, 538f

52 S&S pp 7f

53 S&S p 94

54 'The term "semantics" is derived from the
Greek SEMANTIKOS, "significant," from
SEMAINEIN 'to signify," "to mean." ' —S&S,
p 19. 'The reader is advised not to confuse
the traditional "semantics" (aristotelian
theories of "meaning," etc) with "GENERAL
Semantics" ...It is a general theory of evalua-
tion involving the nervous-system-in-an-en-
vironment, and it has very little, if anything,
to do with "meaning," in the academic sense.'

— A. Korzybski and M. Kendig, 'Foreword' to GENERAL SEMANTICS MONOGRAPH III, p xv

55 S&S, intro to 2nd ed, pp vi f (all references will be to 2nd ed)

56 ibid

57 Alfred Korzybski, 'General Semantics, Psychiatry, Psychotherapy and Prevention,' AMERICAN JOURNAL OF PSYCHIATRY, vol 98 no 1 (Sept 1941), p 203

58 A. Korzybski and M. Kendig, loc cit

59 A. Korzybski, 'An Outline of General Semantics,' in A. Korzybski et al, op cit, p 1

60 S&S p 44. As it is imperative to maintain the terminology of General Semantics, it is not considered necessary to include within quotation marks in this section certain expressions taken from S&S; the page references, however, are always given.

61 S&S pp 10, 60f, 50

62 S&S p 400

63 S&S pp 10, 20, 50

64 S&S pp 50, 106, 108; to my knowledge, Korzybski does not use the term 'non-isolation,' however our use of it here serves our purpose and does not appear unjustified.

65 S&S loc cit; cf Brewer, op cit p 56

66 A.N. Whitehead, PROCESS AND REALITY, qu in S&S, p 369

67 S&S pp 152ff

68 S&S pp 754ff

69 S&S p 202

70 S&S p 57

71 S&S p 751

72 S&S pp 55ff, 62ff, 751f

73 S&S p 752

74 S&S p 104

75 S&S pp 57, 99

76 S&S p 157

77 S&S pp 378 ff

78 S&S pp 235ff

79 S&S pp 387ff

80 S&S p 180

81 S&S p 394

82 S&S pp 389, 240

83 S&S p 395, Ch XXVI

84 S&S pp 165f, 514

85 S&S pp 173ff, 176; see Ch III: E.

86 S&S pp 9, 19ff, 24

87 S&S p xxiii

88 S&S p xx

89 Wendell Johnson, 'Research Program in Language Behavior,' in M. Kendig ed, op cit, p 87

90 S&S p vii

91 S&S pp 8f

92 S&S p 8

93 S&S pp xix, 8f

94 S&S p 9

95 S&S pp 508ff

96 S&S pp 757ff

97 S&S pp 751f

98 S&S Chs XXV, XXIX

99 A. Korzybski, 'An Outline of General Semantics,' p 6

100 See Chs III, VI below

101 A. Korzybski et al, op cit; also M. Kendig ed, op cit

102 S&S p 8

103 S&S p 11

104 S&S p 59

105 S&S p 55

106 Bertrand Russell, 'Introduction' to Ludwig Wittgenstein, TRACTATUS LOGICOPHILOSOPHICUS, p 23, qu in S&S pp xiv, 53

107 S&S p 45

108 S&S p 371

109 S&S p 371

110 S&S p 372

111 A.N. Whitehead, PROCESS AND REALITY, qu in S&S, p 85

112 S&S p 188f

113 A.N. Whitehead, THE PRINCIPLE OF RELATIVITY WITH APPLICATIONS TO PHYSICAL SCIENCE, qu in S&S p 85

114 S&S pp 189f

115 S&S pp 190f

116 S&S p 191; Korzybski states the terms 'order' and 'relation' as undefined terms (see II:C above), 'although we could define relation in terms of multi-dimensional order.' p 155

117 Bertrand Russell, OUR KNOWLEDGE OF THE EXTERNAL WORLD, pp 54f

118 A.N. Whitehead, PROCESS AND REALITY, p 78

119 Augustus de Morgan, FORMAL LOGIC OR THE CALCULUS OF INFERENCE, NECESSARY AND PROBABLE, qu in S&S p 750

120 See II:C:2:a, above; cf G. Santayana, SCEPTICISM AND ANIMAL FAITH; W.M. Wheeler, 'Emergent Evolution of the Social,' S&S p 3

121 S&S p 35

122 S&S p 473

123 S&S pp 409, 638

124 S&S p 409

125 S&S pp ix, 35

126 S&S p 409

127 S&S p 750

128 S&S p 400

129 S&S p 202

130 S&S p 202

131 S&S p 402

132 S&S p 202

133 S&S see Chs XXV, XXIX

134 S&S p 403

135 S&S pp 412, 98

136 S&S p xxx

137 S&S pp 50, 61 See II:C:2:b above

138 See S&S Chs. VIII, IX, X; and various sources cited, notably Jacques Loeb and C.M. Child in physiology, C.S. Sherrington and C. Judson Herrick in neurology, Henri Pieron in

psychology, etc. Cf C.J. Herrick, 'A Neurologist Makes Up His Mind,' THE SCIENTIFIC MONTHLY (Aug. 1939) pp 101ff

139 John Dewey, 'The Unity of the Human Being' (1937), in Ratner, ed, op cit pp 817-835

140 S&S pp xxxff

141 S&S p xix

142 S&S p 104

143 C.M. Child, PHYSIOLOGICAL FOUNDATIONS OF BEHAVIOR, qu in S&S pp 99, 188; cf R.S. Woodworth, PSYCHOLOGY, p 211

144 A. Korzybski, 'The Brotherhood of Doctrines,' qu in S&S p 99

145 S&S p 106

146 Hermann Minkowski, 'Space and Time,' qu in S&S p 99

147 S&S pp 216, 287, 383

148 S&S pp 224ff, 383f

149 A.S. Eddington, THE NATURE OF THE PHYSICAL WORLD, qu in S&S p 223

150 S&S pp 228f

151 H. Poincare, THE FOUNDATIONS OF SCIENCE, qu in S&S, p 223

152 S&S pp 227f

153 S&S p 232

154 S&S p 243

155 S&S p 227

156 A.N. Whitehead, ADVENTURES OF IDEAS, p 145

157 Bertrand Russell, AN OUTLINE OF PHILOSOPHY, pp 254, 304

158 S&S p 163

159 A.N. Whitehead, PROCESS AND REALITY, pp 443f. The use of the term 'bifurcation' appears to be similar to our 'elementalism.'

160 S&S p 106

161 S&S p xxx

162 S&S p 101

163 S&S p 289

164 A.S. Eddington, THE MATHEMATICAL THEORY OF RELATIVITY, qu in S&S p 234

165 S&S p 235. One of the extensional devices introduced by Korzybski is the use of quotation marks around elementalistic terms in order 'to be aware of their INSUFFICIENCY and of their FALLACIOUS structural IMPLICATIONS.' — S&S pp 108, 289

166 S&S pp 106f

167 S&S pp 70f

168 S&S pp 404, 749; C.S. Pierce, 'Laws of Thought,' DICTIONARY OF PHILOSOPHY AND PSYCHOLOGY, vol I, p 641a

169 S&S loc cit

170 S&S pp 197, 405

171 S&S p 197

172 S.I. Hayakawa, 'General Semantics and Propaganda,' THE PUBLIC OPINION QUARTERLY, (Apr. 1939) p 203

173 S&S p 405

174 S&S p. 749

175 S&S pp xliii ff

176 S&S 748f

177 S&S p 17

178 A.N. Whitehead, SCIENCE AND THE MODERN WORLD, p 263

179 In fact, to quote Korzybski, 'an active atheist is psychologically as unsound as a rabid theist.' S&S p 140

180 Josiah Royce, 'The Principles of Logic,' ENCYCLOPAEDIA OF THE PHILOSOPHICAL SCIENCES, vol I, qu in S&S p 220

181 S&S pp 214 f

182 S&S p 215

183 S&S p 216

184 S&S pp 216ff Infinite-valued causality leads to infinite-valued determinism. See Ch IV below

185 S&S p 218

186 H.S. Jennings, THE BIOLOGICAL BASIS OF HUMAN NATURE, qu in S&S p 5

187 S&S pp 405, 541

188 S&S pp 749, 752

189 S&S p xxv

190 A. Korzybski, 'Extensionalization in Mathematics, Mathematical Physics, & General Education, Part I: Extensional Method' p 4

191 S&S p xxvi

192 A. Korzybski, op cit, p 4

193 S&S p xxvi

194 S&S p 176

195 S&S p 179

196 S&S p 180 Korzybski reminds us that there is no 'pure' extension as against 'pure' intension, 'each process never being "pure," but always "impure," one influencing the other.' — S&S pp 180, xii

197 S&S p 176

198 S&S pp 179f

199 S&S pp xv f, 180ff; to achieve extensionalization, Korzybski makes use of what he calls 'extensional devices' such as indexes, dates, etcs., quotes, hyphens. — S&S pp xxviii ff; see Wendell Johnson, 'Language and Speech Hygiene,' pp 44ff

200 S&S p 751

201 S&S p 18

202 S&S p 7 (caps mine)

203 S&S p 36

204 S&S p 36

205 S&S p 7

206 S&S p 726f

207 S&S p 539

208 S&S pp 156, 192

209 S&S p 401

210 S&S pp 297, 637

211 S&S pp 293, 297, 637f

212 S&S pp 638, 671

213 S&S 756f

214 See S&S Ch XXIX; see also A. Korzybski et al, op cit; also M. Kendig ed, op cit

215 S&S p 638

289 S&S p 553

290 S&S p 553

291 S&S p 407. The above description applies to the problem of 'Appearance and Reality.' See B. Russell, THE PROBLEMS OF PHILOSOPHY, Ch I.

292 B. Russell, op cit, p 144

293 loc cit; see Ch III:F:3 above

294 S&S pp 405 f

295 S&S pp 751f

296 S&S pp 136, 139, 144. 'A "propositional function," in fact, is an expression containing one or more undetermined constituents, such that, when values are assigned to these constituents, the expression becomes a proposition.' — B. Russell, INTRODUCTION TO MATHEMATICAL PHILOSOPHY, pp 155f

297 S&S pp 137f; see 'two-valued logic', Ch III:D:2 above

298 S&S p 139

299 S&S pp 14, 433

300 loc cit

301 S&S Ch XXIX

302 S&S p 434

303 S&S p 680

304 S&S p 405

305 S&S p 529

306 S&S p 530

307 loc cit

308 S&S p 139 (last caps mine)

309 S&S pp vii ff

310 S&S p 180

311 S&S p 78

312 S&S p 82f

313 Will Durant, 'The Failure of Philosophy,' HARPERS, vol 154 (Dec. 1926) p 80; also Durant, THE MANSIONS OF PHILOSOPHY, p 4

314 S&S p 176

315 A.K. Rogers, A STUDENT'S HISTORY OF PHILOSOPHY, p 1

316 John Dewey, 'Philosophy,' DICTIONARY OF PHILOSOPHY AND PSYCHOLOGY vol II, p 296a

317 A.N. Whitehead, SCIENCE AND THE MODERN WORLD, p 205

318 A.K. Rogers, op cit, pp 1f

319 A.N. Whitehead, op cit, p 200

320 A.K. Rogers, op cit, p 2

321 A.N. Whitehead, ADVENTURES OF IDEAS, p 184

322 A.K. Rogers, op cit, p 2

323 A.S. Pringle-Pattison, op. cit. p 759a

324 A.N. Whitehead, op cit, pp 179ff

325 E.S. Brightman, op cit, p 10

326 G.T.W. Patrick, op cit, p 32

327 A.K. Rogers, op cit, p 2

328 F. Paulsen, op cit, p 15

329 A.N. Whitehead, op cit, pp 180f

330 W.T. Sedgwick, H.W. Tyler, R.P. Bigelow, A SHORT HISTORY OF SCIENCE, p 76

331 A.N. Whitehead, SCIENCE AND THE MODERN WORLD, pp 208ff

332 See A.C. Benjamin, AN INTRODUCTION TO THE PHILOSOPHY OF SCIENCE, Ch I

333 A.N. Whitehead, ADVENTURES OF IDEAS, p 183

334 Mortimer J. Adler, DIALECTIC, pp 223f

335 The reader should be warned that this distinction is not made anywhere by Korzybski; but it serves our purpose in this particular section. However, see sections E and F below.

336 A.N. Whitehead, op cit, p 183 cf I:B

337 M.J. Adler, op cit, p 224

338 S&S p 240

339 See A.C. Benjamin, op cit, p 20

340 Henri Poincare, THE FOUNDATIONS OF SCIENCE, qu in S&S, p 76

341 E.S. Brightman, op cit, p 25; cf Patrick, op cit. pp 342f

342 S&S p 87

343 J. Royce, 'introduction' to H. Poincare, op cit. pp 20f

344 A.K. Rogers, op cit, p 2

345 A. Korzybski, 'An Outline of General Semantics,' p 2; cf Chs IV:F p 45 above

346 A.K. Rogers, op cit, p 4

347 A.S. Pringle-Pattison, op cit, p 759b; cf Ch I:B, above

348 A.N. Whitehead, ADVENTURES OF IDEAS, p 185

349 Velorus Martz, 'Philosophy and Science,' ENCYCLOPAEDIA OF EDUCATIONAL RESEARCH (1941) ed by Walter S. Monroe, p 797b

350 F.S.C. Northrop, SCIENCE AND FIRST PRINCIPLES, p 2, qu by G.T.W. Patrick, op cit, p 4

351 Herbert Feigl, 'The Significance of Physics in Man's Philosophy,' THE AMERICAN PHYSICS TEACHER, vol 7 (Oct. 1939), p 325a

352 S&S p 553

353 S&S p 180

354 E.S. Brightman, op cit, p 17

355 G.T.W. Patrick, op cit, p 9

356 S&S pp xvii f, xliv

357 S&S p 94

358 S&S p 408

359 S&S p 17, Ch XXIX

360 S&S p 37

361 S&S p 288; see III:F:3

362 S&S pp 130, 288, 240f, 324, 639, 758

363 S&S p 647

364 See A.K. Rogers, pp 22ff

365 S&S p 130

366 S&S p 27

367 S&S pp 274, 364, 420, 549

368 S&S p 759

369 Korzybski et al, op cit, Kendig, op cit

370 S&S p 405

371 G.T.W. Patrick, op cit, p 5
372 S&S p 549
373 G.T.W. Patrick, loc cit
374 ibid, p 9
375 S&S pp 553f

376 S.I. Hayakawa, 'Ethics of Time-binding' in
Kendig ed, op cit, p 30
377 ibid, p 31
378 S&S Ch XXIV, pp 377, 727
379 S.I. Hayakawa, op cit, p 32
380 C.J. Keyser, op cit, p 259f

BIBLIOGRAPHY*

A. BOOKS

1 Adler, Mortimer J., DIALECTIC, London: Kegan Paul, 1927

2 Beard, Chas. A., Ed, WHITHER MANKIND: A PANORAMA OF MODERN CIVILIZATION, New York: Longmans Green, 1928

    2a Beard, Chas. A., 'Introduction,' pp 1-24

    2b Beard, Chas. A., 'Epilogue,' pp 403-408

    2c Dewey, John, 'Philosophy,' pp 313-331

    2d Russell, Bertrand, 'Science,' pp 63-82

3 Benjamin, A. Cornelius, AN INTRODUCTION TO THE PHILOSOPHY OF SCIENCE, New York, Macmillan, 1937

4 Brightman, E.S., AN INTRODUCTION TO PHILOSOPHY, New York: Henry Holt, 1925

5 Burtt, Edwin A., THE METAPHYSICAL FOUNDATIONS OF MODERN SCIENCE: A HISTORICAL AND CRITICAL ESSAY, London: Kegan Paul, 1932

6 Carrel, Alexis, MAN, THE UNKNOWN, London: Hamish Hamilton, 1937

7 Dewey, John, EXPERIENCE AND NATURE, London: Allen & Unwin, 1929

8 Dewey, John, (Jos. Ratner Ed), INTELLIGENCE IN THE MODERN WORLD: JOHN DEWEY'S PHILOSOPHY, New York: Random House (Modern Library), 1939

9 Dewey, John, THE QUEST FOR CERTAINTY: A STUDY OF THE RELATION OF KNOWLEDGE AND ACTION, New York: Minton Balch & Company, 1929

10 Dewey, John, RECONSTRUCTION IN PHILOSOPHY, New York: Henry Holt, 1920

11 Durant, Will, THE MANSIONS OF PHILOSOPHY: A SURVEY OF HUMAN LIFE AND DESTINY, New York: Simon & Schuster, 1929

12 Durant, Will, THE STORY OF PHILOSOPHY, New York: Garden City, 1943

13 Eddington, Sir Arthur, THE NATURE OF THE PHYSICAL WORLD, London: Dent, 1942

14 Eddington, Sir Arthur, THE PHILOSOPHY OF PHYSICAL SCIENCE, (Tarner Lectures, 1938), Cambridge: Cambridge University Press, 1939

15 Erdmann, Johann Eduard, A HISTORY OF PHILOSOPHY, (3 vols, trans by Williston S. Hough), London: Allen & Unwin, 1922

16 Fullerton, G.S., AN INTRODUCTION TO PHILOSOPHY, New York: Macmillan, 1922

17 Kendig, M., Ed, PAPERS FROM THE SECOND AMERICAN CONGRESS ON GENERAL SEMANTICS: NON-ARISTOTELIAN METHODOLOGY (APPLIED) FOR SANITY IN OUR TIME, Chicago: Institute of General Semantics, 1943

    17a Bradford, Alvin P., 'Prediction as a Requisite of Adjustment,' pp 11-16

    17b Hayakawa, S.I., 'Ethics of Time-Binding,' pp 28-32

    17c Johnson, Wendell, 'Research Program in Language Behavior: Development of Formulations and Procedures Consistent with the Theoretical Structure of General Semantics,' pp 87-92

    17d Korzybski, Alfred, 'General Semantics, Psychiatry, Psychotherapy, and Prevention,' pp 93-108

    17e Lieber, Hugh G. & Lilian R., 'Science-The Modern Totem-Pole,' pp 61-68

    17f Reiser, Oliver L, 'From Classical Physical to Modern Scientific Assumptions,' pp 69-78

    17g Reiser, Oliver L., 'Historical-Cultural Significance of Non-Aristotelian Movement and the Methodological Contributions of Korzybski,' pp 3-10

18 Korzybski, Alfred, SCIENCE AND SANITY: AN INTRODUCTION TO NON-ARISTOTELIAN SYSTEMS AND GENERAL SEMANTICS, Lancaster, Pa.: The Science Press Printing Company, 1st ed 1933, 2nd ed 1941

    18a Carmichael, R.D., 'The Logic of Relativity,' pp 729-736 (Suppl I)

    18b Korzybski, Alfred, 'A Non-Aristotelian System and Its Necessity for Rigour in Mathematics and Physics,' pp 747-761, (Suppl III)

    18c Weiss, Paul, 'The Theory of Types,' pp 737-746, (Suppl II)

19 Korzybski, Alfred, et al, GENERAL SEMANTICS: PAPERS FROM THE FIRST AMERICAN CONGRESS ON GENERAL SEMANTICS, New York: Arrow Editions, 1938

    19a Brewer, Joseph, 'Education and the Modern World,' pp 54-58

    19b Korzybski, Alfred, 'An Outline of General Semantics: The Application of Some Methods of Exact Sciences to the Solution of Human Problems and Educational Training for General Sanity,' pp 1-32

20 Mackenzie, J.S., ELEMENTS OF CONSTRUCTIVE PHILOSOPHY, London: Allen & Unwin, 1919

* See note at end of bibliography

21 Patrick, G.T.W., INTRODUCTION TO PHILOSOPHY (Revised Ed with Frank M. Chapman), Boston: Houghton Mifflin, 1935

22 Paulsen, Friedrich, INTRODUCTION TO PHILOSOPHY, (2nd American Ed trans by F. Thilly), New York: Henry Holt, 1922

23 Poincare, Henri, THE FOUNDATIONS OF SCIENCE: SCIENCE AND HYPOTHESIS, THE VALUE OF SCIENCE, SCIENCE AND METHOD, (Trans by G.B. Halsted); Royce, Josiah, 'Introduction,' New York: The Science Press, 1929

24 Robinson, James Harvey, THE MIND IN THE MAKING, London: Watts, 1943

25 Rogers, Arthur Kenyon, A STUDENT'S HISTORY OF PHILOSOPHY (3rd ed), New York: Macmillan, 1941

26 Russell, Bertrand, THE ANALYSIS OF MIND, London: Allen & Unwin, 1933

27 Russell, Bertrand, AN INQUIRY INTO MEANING AND TRUTH, London: Allen & Unwin, 1943

28 Russell, Bertrand, INTRODUCTION TO MATHEMATICAL PHILOSOPHY, London: Allen & Unwin, 1919

29 Russell, Bertrand, OUR KNOWLEDGE OF THE EXTERNAL WORLD; AS A FIELD FOR SCIENTIFIC METHOD IN PHILOSOPHY, London: Allen & Unwin, 1926

30 Russell, Bertrand, AN OUTLINE OF PHILOSOPHY, London: Allen & Unwin, 1941

31 Russell, Bertrand, THE PROBLEMS OF PHILOSOPHY, New York: Henry Holt, 1912

32 Russell, Bertrand, THE SCIENTIFIC OUTLOOK, London, Allen & Unwin, 1934

33 Russell, Bertrand, WHAT I BELIEVE, London, Kegan Paul, 1933

34 Sedgwick, W.T.; Tyler, H.W.; Bigelow, R.P., A SHORT HISTORY OF SCIENCE, New York: Macmillan, 1939

35 Sinclair, W.A., AN INTRODUCTION TO PHILOSOPHY, London: Oxford U. Press, 1944

36 Spengler, Oswald, THE DECLINE OF THE WEST, (2 vols rev ed), vol I, FORM AND ACTUALITY, (trans by Chas. F. Atkinson), New York: Knopf, 1929

37 Stebbing, L. Susan, PHILOSOPHY AND THE PHYSICISTS, London: Penguin ed, 1944

58 Thilly, Frank, A HISTORY OF PHILOSOPHY, New York: Henry Holt, 1914

39 Wells, H.G., THE CONQUEST OF TIME, London: Watts (Thinker's Lib.), 1942

40 Whitehead, A.N., ADVENTURES OF IDEAS, Cambridge Univ. Press, 1943

41 Whitehead, A.N., PROCESS AND REALITY: AN ESSAY IN COSMOLOGY, (Gifford Lectures, 1927-1928), New York: Macmillan, 1941

42 Whitehead, A.N., SCIENCE AND THE MODERN WORLD, (Lowell Lectures, 1925), New York: Macmillan, 1941

43 Woodworth, Robt. S., PSYCHOLOGY (4th ed), New York: Henry Holt, 1940

44 Wright, W.K., A STUDENT'S PHILOSOPHY OF RELIGION, New York: Macmillan, 1940

B. MONOGRAPHS

45 Johnson, Wendell, LANGUAGE AND SPEECH HYGIENE: AN APPLICATION OF GENERAL SEMANTICS, (General Semantics Monographs No. I), Chicago: Institute of General Semantics, 1939

46 Pollock, Thomas C., A THEORY OF MEANING ANALYZED: CRITIQUE OF I.A. RICHARDS' THEORY OF LANGUAGE, and Spaulding, J. Gordon, ELEMENTALISM: THE EFFECT OF AN IMPLICIT POSTULATE OF IDENTITY ON I.A. RICHARDS' THEORY THEORY OF POETIC VALUE; with a supplementary paper by Allen Walker Read, THE LEXICOGRAPHER AND GENERAL SEMANTICS; FOREWORD by Alfred Korzybski and M. Kendig, (General Semantics Monographs No. III), Chicago: Institute of General Semantics, 1942

C. ARTICLES, PAPERS, PERIODICALS

47 Bell, Eric T., A Review of SCIENCE AND SANITY, AMERICAN MATHEMATICAL MONTHLY, Nov 1934, pp 571-573

48 Bridgman, P.W., 'The New Vision in Science,' HARPER'S, Mar 1929, pp 400ff

49 Campbell, D.G., 'General Semantics: Implications of Linguistic Revision for Theoretical and Clinical Neuro-Psychiatry, AMERICAN JOURNAL OF PSYCHIATRY, Jan 1937, pp 789-807

50 Campbell, D.G., 'General Semantics and Schizophrenic Reactions; Neuro-Linguistic and Neuro-Semantic Mechanisms of Pathogenesis and Their Implications for Prevention and Therapy,' (Presented before American Psychiatric Association, Chicago, May, 1939), Chicago: Institute of General Semantics

51 Cleckley, Hervey, A Review of Second Edition SCIENCE AND SANITY, in MENTAL HYGIENE, April 1943, pp 298-303

52 Devereux, George A., 'A Sociological Theory of Schizophrenia,' PSYCHOANALYTIC REVIEW, July, 1939, pp 315-342

53 Dewey, John, 'An Empirical Survey of Empiricisms,' STUDIES IN THE HISTORY OF IDEAS, (ed by Dept of Philosophy, Columbia Univ) New York: Columbia Univ. Press, 1935

54 Durant, Will, 'The Failure of Philosophy,' HARPER'S, Dec 1926, pp 80ff

55 Feigl, Herbert, 'The Significance of Physics in Man's Philosophy,' THE AMERICAN PHYSICS TEACHER, Oct 1939, pp 324-327

56 Hayakawa, S.I., 'The Meaning of Semantics,' NEW REPUBLIC, Aug 2, 1939, pp 354-357

57 Hayakawa, S.I., 'General Semantics and Propaganda,' PUBLIC OPINION QUARTERLY, April 1939, pp 197-208

58 Hayakawa, S.I. 'Problems of Language,' NEW REPUBLIC, Nov 15, 1939, pp 116-117

59 Herrick, C. Judson, 'A Neurologist Makes Up His Mind,' Mellon Lecture, Univ. of Pittsburgh School of Medicine, May 1939, SCIENTIFIC MONTHLY, Aug 1939 p 99ff

60 Jelliffe, Smith Ely, A Review of Science and Sanity, JOURNAL OF NERVOUS AND MENTAL DIS-EASES, Sept 1935, pp 358-361

61 Keyser, Cassius J., 'Mathematics and the Science of Semantics,' SCRIPTA MATHEMATICA, May 1934, pp 247-260

62 Korzybski, Alfred, 'General Semantics: Extensionalization in Mathematics, Mathematical Physics, and General Education,' Part I, Presented before Mathematics Section, A.A.A.S., St. Louis, Dec. 1935, 'The Extensional Method,' Chicago: Institute of General Semantics

63 Same, Part II, 'Thalamic Symbolism and Mathematics,' Presented before Mathematics Section, A.A.A.S., Richmond, Dec 1938, Chicago: Institute of General Semantics

64 Korzybski, Alfred, 'Neuro-Semantic and Neuro-Linguistic Mechanisms of Extensionalization. General Semantics as a Natural Experimental Science,' Presented before the Psychology Section, A.A.A.S., St. Louis, Dec 1935; AMERICAN JOURNAL OF PSYCHIATRY, July 1936, pp 29-38

65 Korzybski, Alfred, 'The Science of Man,' AMERICAN JOURNAL OF PSYCHIATRY, May 1937, (A review of A. Carrel's MAN THE UNKNOWN), pp 1343-1351

66 Lee, Irving J., 'General Semantics and Public Speaking,' QUARTERLY JOURNAL OF SPEECH, Dec 1940, pp 594-601

67 Lee, Irving J., 'Language for the Living,' EDUCATIONAL TRENDS, May-June 1940, pp 1-5

68 Lundberg, George A., A Review of SCIENCE AND SANITY, SOCIAL FORCES, Dec. 1937, pp 291-293

69 Thorndike, Edward L., 'Science and Values,' ETC., Aug 1943, pp 1-11

70 Weinberg, Alvin M., 'General Semantics and the Teaching of Physics,' THE AMERICAN PHYSICS TEACHER, April 1939, pp 104-108

71 Whorf, Benjamin Lee, 'Science and Linguistics,' THE TECHNOLOGY REVIEW, April 1940

D. DICTIONARIES, ENCYCLOPEDIAS

72 Dewey, John, 'Philosophy,' DICTIONARY OF PHILOSOPHY AND PSYCHOLOGY, Ed by J.M. Baldwin, New York: Macmillan, 1928, vol II, pp 290ff

73 Martz, Velorus, 'Philosophy and Science,' ENCYCLOPEDIA OF EDUCATIONAL RESEARCH, Ed by Walter S. Monroe, New York: Macmillan, 1941, pp 795-798

74 Pierce, C.S. 'Laws of Thought,' DICTIONARY OF PHILOSOPHY AND PSYCHOLOGY (see 72 above), vol I, pp 641-644

75 Pringle-Pattison, A.S., 'Philosophy and Philosophical Studies,' ENCYCLOPAEDIA BRITANNICA, (14th ed, 1942), vol 17, pp 759ff

n.b. Some of Mr. Economides' references are to British editions; also to reprints in Thinker's Library, Everyman's Library, etc., which were the only copies available in Cairo. We have not attempted to revise these, but in most cases American editions are available.